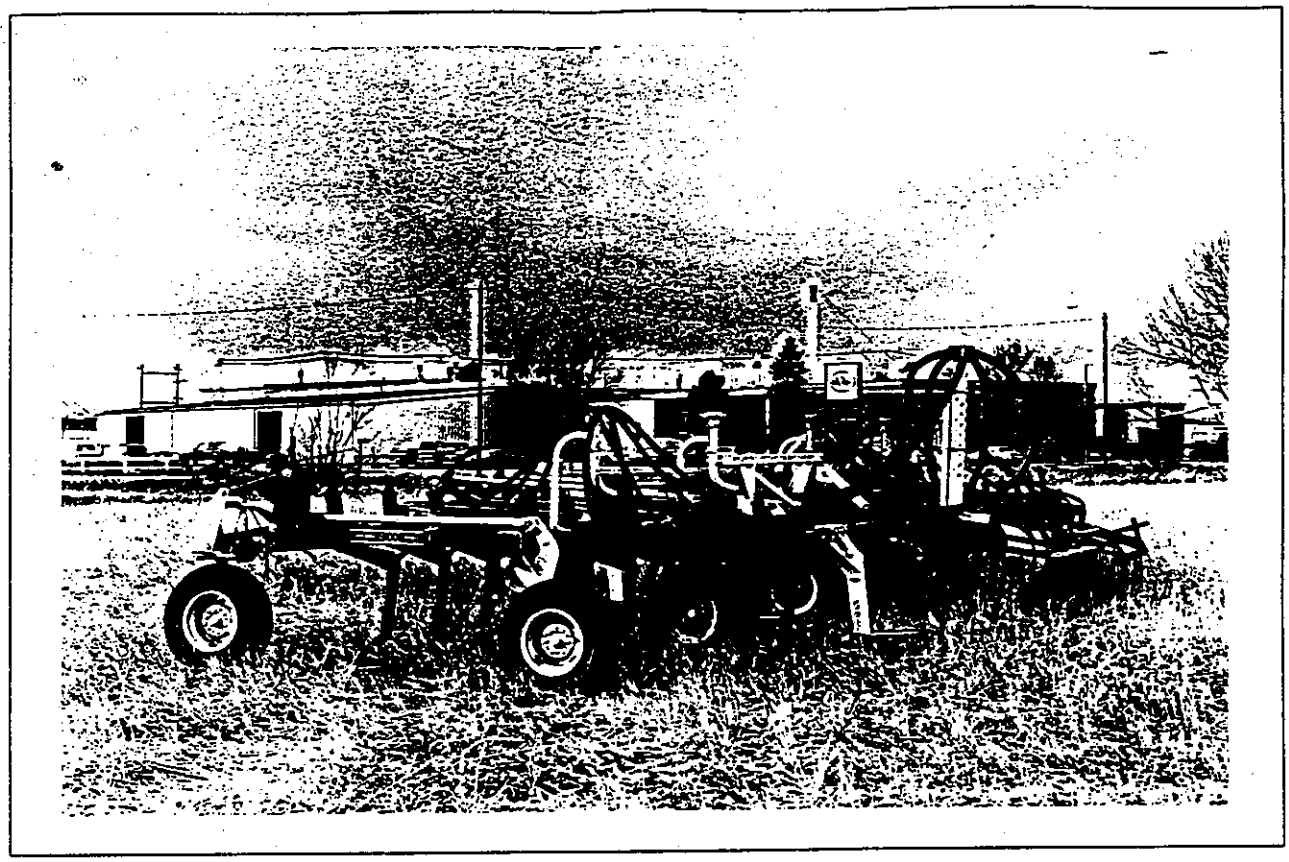
NEW NOBLE

DK 4000



OPERATOR'S MANUAL, ASSEMBLY MANUAL AND PARTS LIST.

FOR MODEL 4000

MANUFACTURED AND DISTRIBUTED BY:

NEW NOBLE

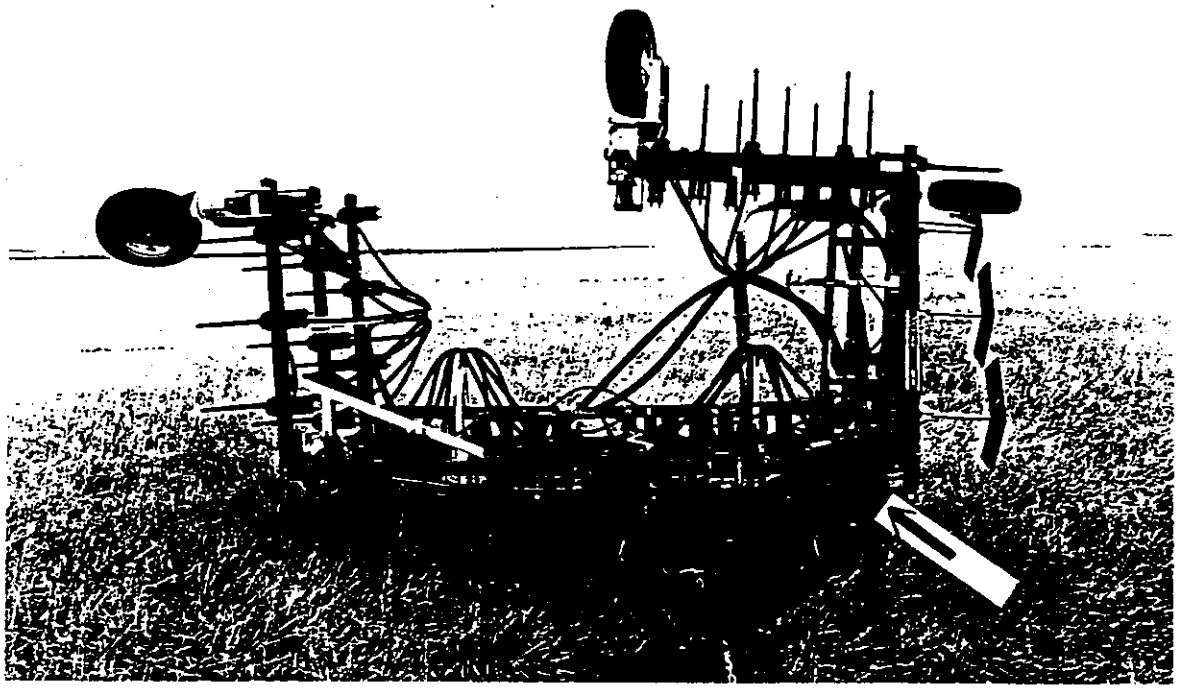
SPRING 1998
906320

NOBLEFORD ALBERTA CANADA

SERIAL NUMBER LOCATION

For better service, always give your dealer the serial number of your **NEW NOBLE MULTI-TOOL** when ordering parts or requesting service or other information.

The serial number plate is located where indicated.



Please mark the model, year and serial number below for future reference.

MODEL: _____

YEAR: _____

SERIAL NUMBER: _____-_____

NEW NOBLE 4000 MULTI-TOOL MANUAL

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Table of Contents.

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1. INTRODUCTION

The 4000 Multi-tool is an advanced tillage design resulting from a research and development team that takes customer's suggestions seriously. New Noble is certain that your choice of a 4000 will complement your present and future farming operation, providing years of dependable service.

This Operator's Manual and Parts List has been prepared to provide the necessary safety operation and maintenance that are required to provide you with years of trouble free service. We urge you to read this Manual thoroughly and carefully.

KEEP THIS MANUAL HANDY FOR FUTURE REFERENCE.

1.2 OPERATOR ORIENTATION

The directions left, right, front and rear, as mentioned throughout the Manual, are as seen from the tractor cab and facing in the direction of travel.

1.3 WARRANTY

NEW NOBLE DISTRIBUTORS INC. warrants to the original retail purchaser of each NEW NOBLE MULTI-TOOL that the Selling Dealer will repair or replace any part thereof found to be defective in materials or workmanship within 1 year (12 months) warranty period.

- Such repair or replacement will be done free of charge for both parts and labour using NEW NOBLE parts.
- Warranty work will be preformed by the Selling Dealer upon delivery of the Multi-tool to the Selling Dealer's place of business in Canada or Unites States.
- The Selling Dealer shall review these warranty provisions with the purchaser prior to the retail sale, secure his acknowledgment of delivery of this warranty and record the date of original retail sale or original use.

WHAT IS NOT COVERED BY THIS WARRANTY?

This warranty shall not apply to:

(i) Items of the NEW NOBLE MULTI-TOOL which are covered by a separate warranty from the manufacturer, such as: tires and hydraulic cylinders;

(ii) Products subjected to misapplication, abuse, misuse, negligence, lack of maintenance described in the Owner's Manuals, fire or other accident.

(iii) Normal maintenance services to replacement of service items (such as blades) or to normal deterioration due to use or exposure (such as hoses, cylinders and exterior finish).

(iv) Any NEW NOBLE MULTI-TOOL which is normally operated outside of Canada or United States.

LIMITATION OF IMPLIED WARRANTIES AND CONSEQUENTIAL DAMAGES

To the extent allowed by law:

(i) ANY WARRANTY IMPLIED BY LAW AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS LIMITED TO THE DURATION OF THE WARRANTY PERIOD OF THIS LIMITED WARRANTY. (SOME PROVINCES/STATES DO NOT ALLOW LIMITATION ON HOW LONG AN IMPLIED WARRANTY MAY LAST, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.)

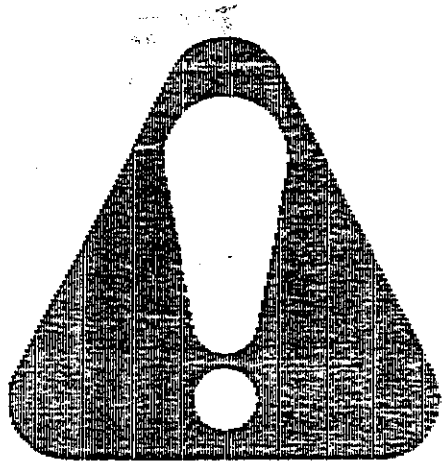
(ii) NEITHER **NEW NOBLE DISTRIBUTORS INC.** NOR ITS AUTHORIZED DEALERS SHALL HAVE ANY RESPONSIBILITIES FOR PERSONAL HEALTH/MEDICAL OR INJURY, LOSS OF CROPS, LOSS OF USE OF THE PRODUCT, LOSS OF TIME, INCONVENIENCE, COMMERCIAL LOSS OR INCIDENTAL OR CONSEQUENTIAL DAMAGES. (SOME PROVINCES/STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OR INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.)

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM PROVINCE TO PROVINCE/STATE TO STATE.

No person is authorized to make on behalf of **NEW NOBLE DISTRIBUTORS INC.** any representations beyond those expressed herein.

NEW NOBLE DISTRIBUTORS INC. reserves the right to make changes in design and other changes in its products at any time and from time to time without notice and without incurring any obligation with respect to any product previously ordered from it or sold or shipped by it.

2. SAFETY



Watch for this symbol. This Safety-Alert symbol means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**

It is used to identify potential hazards and care should be taken to prevent bodily injury.

SIGNAL WORDS USED IN CONJUNCTION WITH SAFETY-ALERT SYMBOLS

DANGER: Denotes an extreme intrinsic hazard exists which would result in a high probability of death or irreparable injury if proper precautions are not taken.

WARNING: Denotes a hazard exists which can result in injury or death if proper precautions are not taken.

CAUTION: Denotes a reminder of safety practices or directs attention to unsafe practices which could result in personal injury if proper precautions are not taken.

2.1 GENERAL SAFETY

1. Read and understand the Operator's Manual and Safety Signs before operating, servicing or adjusting the machine. Operating instructions must be given to everyone using the machine before operation and at least once yearly thereafter in compliance with OSHA Regulation 1928.57.

2. Be prepared for emergencies. Keep a fire extinguisher and first aid kit in your tractor and maintain it regularly. Be familia with use of these items.

3. Do not allow riders on the machine or the tractor. Keep all persons away from the immediate area of machine which in operation.

4. Wear appropriate protective gear.

5. Always keep protective guards and shields in place as specified.

6. Review safety related items with operators annually.

2.2 OPERATING SAFETY

1. Never put feet under shovels of machine when servicing or adjusting the machine.

2. Keep clear of hitch when hooking and unhooking.

3. Stop tractor, place all controls in neutral, shut off engine, remove ignition key, set park brake, relieve hydraulic pressure and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.

4. Ensure jack is locked with safety pin to frame before using.

5. Keep hands, feet, hair and clothing away from moving parts.

6. Always stay clear of folding wings when they are being raised, lowered or are in an elevated position, as wings may fall rapidly.

7. Ensure all lockup devices provided are fully engaged and cylinders are filled with hydraulic fluid when wings are in elevated position.

8. Do not forcefully remove lockup devices. Lift cylinders must be fully pressurized.

9. Stay clear of implement when raising or lowered implement or wings.

10. Ensure wing lift cylinders are fully extended to allow wings to flex in operation.

11. Never lift wings without use of hydraulic system provided.

2.3 MAINTENANCE SAFETY

1. Use depth locks and block wheels when working under or near implement.

2. Relieve hydraulic pressure on system before repairing or adjusting.

3. Keep all hydraulic components tight and in good repair.

4. Hydraulic system must be full of oil at all times to prevent damage to equipment and operator.

5. Wear proper head and eye protection when searching for hydraulic leaks. Use wood or cardboard instead of hands.

6. Never remove hydraulic couplers off hoses or hoses off oil lines with machine in transport position.

CAUTION: Escaping hydraulic fluid under pressure can penetrate skin causing severe injury and possible toxic reaction. **SEE A PHYSICIAN IMMEDIATELY IF INJURED.**

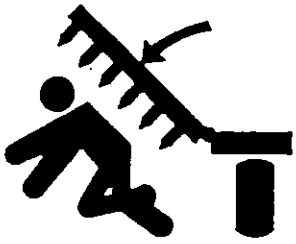
2.4 TRANSPORT SAFETY

1. Only use tractor to transport implement.
2. Watch for overhead powerlines and low overhead clearance when transporting.
3. Use safety chain on hitch for transport.
4. Ensure slow moving vehicle (SMV) sign is visible from rear of implement when transporting.
5. Maximum transport speed is 10 MPH (15 KPH) unless legally specified lower. Do not exceed a safe travel speed. Always maintain vehicle control and stability. Reduce speed on rough roads and surfaces.
6. Depth locks must be in place and pinned for transport.
7. Ensure wing lockups are pinned for transport.
8. Never raise or lower machine while in transport position.
9. Do not transport at night. Always turn on highway lights of towing vehicle and mount lights on the outermost corners of implement when transporting on roadways.

2.5 SAFETY DECALS

1. Keep safety decals and signs clear and legible at all times.
2. Replace safety decals if destroyed, missing, painted over or unreadable.
3. If a section of the cultivator is replaced that carried a safety decal, apply a new decal immediately.
4. Safety decals or signs are available from the manufacturer.

Safety Decals



WARNING

Clear area around machine before raising or lowering wings or machine.

Lower wings before adjusting or servicing unit.

1

DANGER

DO NOT FORCIBLY REMOVE LOCKUP DEVICE. LIFT CYLINDER MUST BE FULLY PRESSURIZED. LIFT LINKAGE MUST BE TAUT BEFORE REMOVING SAFETY LOCK PIN OR CHAIN. FAILURE TO DO SO WILL RESULT IN SERIOUS INJURY OR DEATH.

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5

CAUTION

ENSURE ALL HOLDUP BARS ARE FULLY ENGAGED BEFORE TRANSPORTING

82250

6

2

CAUTION

Read operator's manual first.

Stay clear of implement when raising or lowering implement wings.

Stay clear of implement while it is operating or being transported.

If implement is equipped with rear mounted secondary attachments, provide safe blocking to the rear of implement, or lower implement to ground to prevent hitch from upending when unhitched from tractor.

Use depth cylinder hold-up bars or support implement frame when working under or near cultivator.

Keep feet and hands clear of hitch when hitching or unhitching from tractor.

Watch for overhead power lines and low overhead clearances when transporting.

Only use tractor to transport this implement.

83256

7

CAUTION

ENSURE JACK IS LOCKED WITH SAFETY PIN TO FRAME BEFORE USING.

98 69661

3

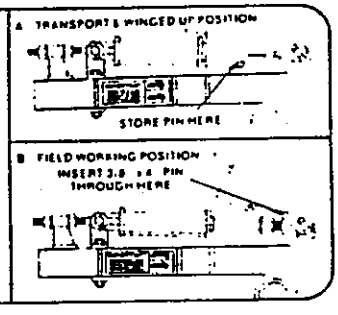
IMPORTANT

TRANSPORT ONLY WITH A PRESSURIZED HYDRAULIC SYSTEM AND HOLD-OUT BARS IN "PINNED DOWN" POSITION OVER THE CYLINDER SHAFT (See illustration "A" to right)

MODELS WITH MULTIPLE DEPTH CYLINDERS MUST HAVE A CYLINDER AT EACH LOCATION. DEPTH CYLINDERS MUST ALL BE CONNECTED AS ILLUSTRATED IN THE SET UP MANUAL AND CONNECTED TO ONE HYDRAULIC VALVE.

UNDER NO CIRCUMSTANCES SHOULD THE DEPTH CYLINDERS BE ACTIVATED WHILE THE WINGS ARE IN THE FOLD UP POSITION.

WHEN WORKING IN THE FIELD, INSERT THE 3/8" X 4" PIN THROUGH ALL HOLD-OUT BARS TO PREVENT THEM FROM FALLING DOWN OVER THE CYLINDER SHAFT (See illustration "B" to right)



8

CAUTION

USE SAFETY CHAIN FOR TRANSPORT

4

IMPORTANT READ OPERATOR'S MANUAL FIRST

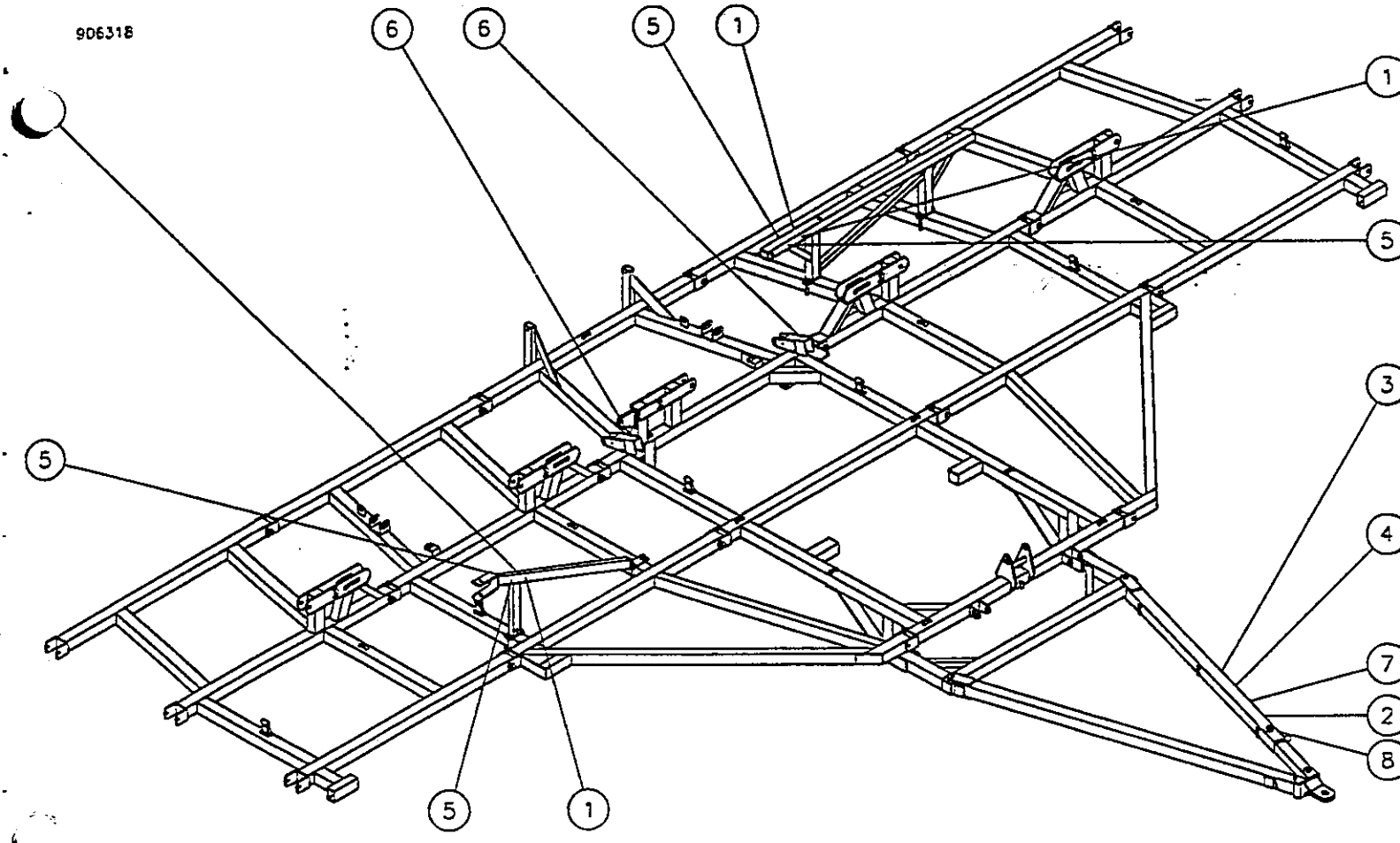
RAISING IMPLEMENT WINGS INTO TRANSPORT POSITION:

1. Raise implement out of the ground by fully extending depth cylinders.
2. Swing transport hold-up bars over depth cylinders.
3. Remove all extra weight and loose items from the implement and weight boxes.
4. Secure any trailing implements, mulchers, packers etc.
5. Slowly raise implement wing lift hydraulics.
6. When implement wings reach the over-center balance point, allow wings to complete the fold-over in a slow steady motion.
7. When all implement wings are against transport bars, release hydraulics.
8. Securely pin implement wings in transport bars before moving.

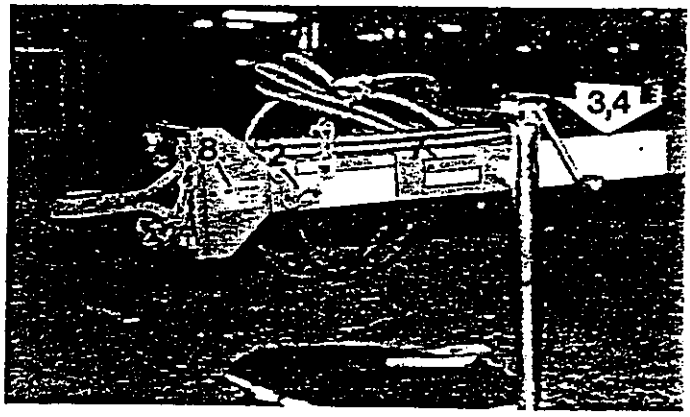
LOWERING IMPLEMENT WINGS INTO FIELD POSITION

1. Reverse the above procedure, by first removing the pins from the transport bars.
2. When in field position, make sure implement wing lift cylinders are extended to insure wing flexing when working.

CHECK LOCAL REGULATIONS REGARDING TRANSPORT ON PUBLIC ROADS. MAXIMUM TRANSPORT SPEED IS 10 MILES PER HOUR (16 KM/HR). L18



Safety Decals



3. GENERAL ASSEMBLY

Preassembly

Select a level surface large enough to accommodate the assembled machine. Assemble all the required parts, tools and adequate capacity safety stands (3000 lbs. capacity). Use at least two people when assembling this machine.

Tighten all hardware to the following specifications unless otherwise specified.

Torque Specifications

3/8.....25 lbf ft(35 N.m)
1/2.....55 lbf ft(75 N.m)
5/8.....115 lbf ft(155 N.m)
3/4.....200 lbf ft(270 N.m)
1.....420 lbf ft(570 N.m)
1 1/8.....400 lbf ft(545 N.m)
1 1/4.....800 lbf ft(1085 N.m)
Hyd. Fittings (Steel) .....
.....30-40 lbf ft(40-55 N.m)

IMPORTANT

Do not overtighten hydraulic fittings.

DANGER

Escaping hydraulic fluid under pressure can cause severe reaction. If injured, see doctor immediately.

Hydraulic fitting assembly

Approved thread sealants for hydraulic fittings on this unit are:

1. Loctite
2. Permabond
3. Unbrako

IMPORTANT

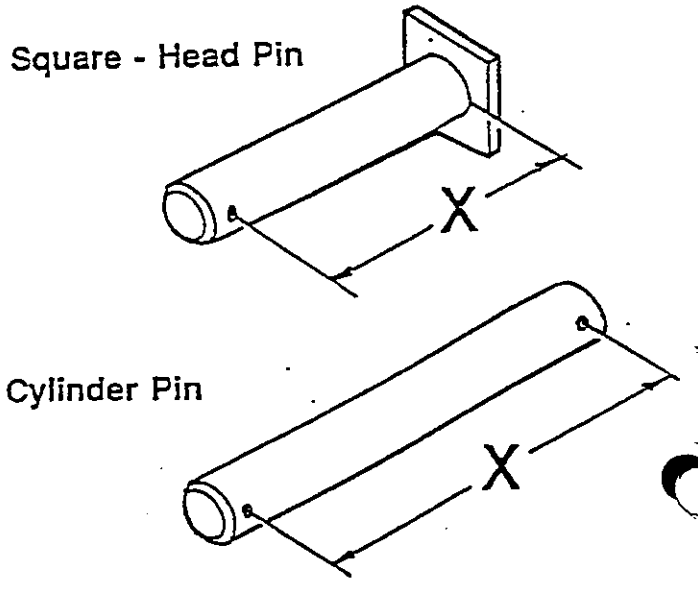
Do not used Teflon tape around fittings as it may contaminate the hydraulic system.

Note

Flared swivel fittings do not require sealant.

In the following assembly instructions right and left are looking from the rear of the machine.

Pin lengths are measured as follows:



5 SECTION MODEL FRAME AND AXLE ASSEMBLY

1. Block up centre frame approximately 760 mm. (30 in.) off the floor, Page 86-95.

2. Slide centre axle in under centre frame from the rear. Lift main axle shaft leaving hubs on the floor. Slide transport axle to the right as far as possible on the main axle shaft. Attach axle to centre frame saddles using two bearing caps, 3/4" x 2 1/2" capscrews, flatwashers and locknuts.

Note

After bearing caps are tightened check that axle is free to rotate by moving hubs back and forth. Shims maybe added between bearing cap and frame saddle to allow axle to move freely when fasteners are tight.

3. Rotate axle throws to the rear and up high enough to install wheel assemblies. Torque wheel bolts to 60 ft.-lb (85N-m). Inflate 9.15L x 15 tires to 50 psi (420 kpa).

4. Install centre gauge wheel support, 3" x 4" cross tube to the rear using two 1" X 5 3/8" (137mm.) square head pins flatwashers and 1/4" x 2" cotter pins, Page 96-97

Note

Install 1" x 5 3/8" (137mm.) pins with square head seating against cleat on frame hinge lug so pin cannot rotate.

5. Install upper link between vertical lugs at front of centre frame. Bent portion of link must be forward and arch must be up. Retain with 1" x 8 1/2" (217 mm.) square head pin, flatwasher and 1/4" x 2" cotterpin. Square head must seat against cleat on vertical lug so pin can not rotate.

6. Connect rear ends of upper link and gauge wheel support to centre gauge wheel castor housing with lower horizontal pivot tube forward using two 1" x 8 1/2" (217mm) square head pins flatwashers and 1/4 x 2" cotterpins. Square head must seat against cleat so pins cannot rotate, Page 96-97.

7. Rotate gauge wheel support high enough by lifting housing high enough to insert dual castor axle into housing.

8. Install nylon washer, castor cap, lockwasher and capscrew

9. Further rotate gauge wheel support assembly high enough to install wheel assemblies. Torque wheel bolts to 60 ft-lbs. (85 N-m). Inflate 9.5L x 15 tire to 50 psi (420 kpa).

10. Connect nut end of long offset connecting links to threaded trunnions on gauge wheel support arms with turnbuckle rods. Be sure to install jam nuts on turnbuckle rods. Start left hand thread of turnbuckle into trunnion at the same time as right hand thread starts into link nut. Turn turnbuckle until threads have penetrated their respective nuts - about 1 1/2" (40 mm).

11. Install a R.H. adjustable ram lug to the anchor lug on the right side of the centre frame with a regular 1" hex nut threaded on behind the anchor lug and a 1" nylon insert locknut in front of the anchor. Clamp lug to frame tube with 5/8" U-bolts and 5/8" locknuts, Page 96-97.

12. Similarly install a L.H. adjustable ram lug to the left side of the centre frame.

13. Adjust R.H. & L.H. lugs to a distance of 21 1/4" (540mm) between the centre of the cylinder pin hole and the front of the mid cross tube. Both lugs must be the same distance. Page 51

14. With the centre frame supported fairly level on the stands allow the tires on the main axle and the front gauge wheels to touch the ground.

15. Install barrel ends of the master depth cylinders to adjustable ram lugs with cylinder pins and clips.

Note

Ports must face upward.

16. Remove clevis's from master cylinder rods and install stroke control collars. Pull out cylinder rods until clevis hole lines up with hole in main axle arms. Position hold-up bars over rod end clevis and attach both to axle arm with 1" x 5 5/16" (135mm) cylinder pin. Install the pin from the outside and stop when pin is flush with inner side of hold-up bar. Position the lug end of the long offset connecting link to line up with rod end cylinder pin on inner side of hold-up bar. Connecting link turnbuckle may have to be adjusted. Push cylinder pin all the way through assembly and retain with flatwashers and 1/4" x 2" cotterpins.

17. Once both master depth cylinders are installed raise centre frame allowing axles to rotate downward to extend cylinders and engage hold-up bar to hold the cylinders in an extended position. Remove safety stands and set centre frame down on its wheels.

18. Position the right and left centre wing frames beside the centre frame. Insert hinge bushings into hinge points on the right and left centre wing frames. Install the centre wing frames to the centre frame with 1" x 6 1/2" capscrews and locknuts. Support the outside of these frames on a safety stand. Page 86-95.

19. Install R.H. and L.H. adjustable ram lugs to their respective frame as per steps 11, 12 & 13 above.

20. Preassemble pivot brackets to the pivot shaft on R.H. single axle. The four hole outer pivot bracket is installed on the hub side of the axle. The two hole inner pivot bracket is installed on the opposite side with the bushing toward the axle throw. Retain pivot brackets with 2 1/16" ID x 3" OD flatwasher and 5/16" x 3" cotter pins. Page 98-99.

21. Install R.H. single axle assembly to mid-cross tube on right centre wing frame with three 3/4" x 4" x 5 1/2" U-bolts lockwashers and nuts. Align axle arm with adjustable ram lug and tighten U-bolts.

22. Repeat 21 on left frame.

23. Rotate axles high enough to install wheel assemblies.

24. Install barrel ends of slave cylinders to adjustable ram lugs with cylinder pins and clips.
Page 98-99, 70-79

Note

Ports must face upwards

25. Pull out cylinder rods until clevis hole lines up with hole in axle arm, install 1" x 4.7" (120mm) cylinder pin and retain with flatwasher and 1/4" x 2" cotterpin.

26. On outer wing install barrel end of slave cylinders to adjustable ram lugs on outer wings with cylinder pins and clips.

27. Pull out cylinder rods until clevis hole lines up with hole in axle arm. Install 1" x 4.7" (120mm) cylinder pin from inward side of rod end clevis and stop when pin is flush with outer side of clevis. (Complete steps 28 through 35 before pushing pin all the way into place on 7-1/2'wings.)

28. Install outer gauge wheel anchor to "T" frame on outer front corner of wing frame using two 3/4 x 4" x 4 1/2" U-bolts and locknuts. Centre gauge wheel anchor on "T" frame before tightening U-bolts, Page 100-101.

29. Install gauge wheel top link and lower link to anchor brackets using 1" x 8 1/2" (217mm.) square head pins flatwashers and 1/4" x 2" cotterpins. Bent portion of lower link must be forward and arch must be up. Square head on pins must seat against cleats on anchor side plate so pins cannot rotate.

30. Install gauge wheel castor housing to forward ends of top and lower link using 1" x 8 1/2" (217mm) square head pin flatwashers and 1/4" x 2" cotterpins. Square head must seat against cleat.

31. Rotate gauge wheel assembly high enough to insert single caster axle into caster housing.

32. Install nylon washer, castor cap, lockwasher and capscrew.

33. Install jam nut on turnbuckle rod, connect nut end of short outer connecting link to threaded trunnion on top link with turnbuckle rod. Ensure grease fitting on trunnion is up. Start left hand thread of turnbuckle into trunnion at the same time as right hand thread starts in link nut.

34. Adjust the turnbuckle until the lug end of the connecting link lines up with rod end cylinder pin on the outer depth control cylinder. The connecting link will be on the outer side of the cylinder with its lug offset inward.

37. Install three 1" flatwashers between the rod end cylinder clevis and lug on the end of the connecting link. Push the 1"x 4.7" (120mm.) cylinder pin the rest of the way through the assembly and retain with flatwashers and 1/4" x 2" cotterpins.

Note

The three flatwashers prevent the connecting link from rubbing on the outer side of the cylinder.

HITCH ASSEMBLY, Page 86-87

1. Install hitch cross tube to center frame with 1 1/4"x6 1/2" pins, flatwashers & 3/16x3 1/2" hairpins.

2. Install right hitch arm and left outer hitch arm with 1 1/2" x 513/16" pins, flatwashers and 3/16" x 2 1/2" cotterpins.

3. Install hitch jack onto left side of outer hitch arm and adjust to support front end of hitch.

4. Install left inner hitch arm with 1 1/2" x 6 1/2" lock pin and klik pins. Connect right hitch arm and left inner hitch arm with 1 1/2" x 5 3/4" pin flatwasher & 3/16" x 2 1/2" cotterpin.

5. Install safety chain with clevis to the right side safety chain lug, and install the hose holder with a 3/4" flange nut to a 3/4" x 2" capscrew on the right hitch arm.

WINGLIFT/TRANSPORT ASSEMBLY, Refer to pages 62-67, 80-83, 110-111 for cylinder sizes and hose lengths for the correct size of machine being assembled.

1. Pull cylinder rods all the way out on all three winglift cylinders.

2. Connect barrel end of 30" cylinder to 1 1/4" hole in left side of winglift bracket on centre frame using 1 1/4" x 4.7" (120mm) cylinder pin flatwashers and 1/4" x 2 1/2" cotterpins. **Ports must face forward.**

3. Connect rod end of 30" cylinder to slot in winglift bracket on left centre wing frame using 1 1/4" x 4.7" (120mm) cylinder pin flatwashers (5) and 1/4" x 2 1/2" cotterpins.

4. Connect a 30" cylinder between the centre wing and the outer wing on both sides of machine as in steps 2 and 3 above. **Ports must face forward.**

5. Install stroke control ass'y on the 3 1/2" x 8" hinge stiffener cylinder connect barrel end to 1" hole in right side of winglift bracket on centre frame using 1" x 5" (126mm) cylinder pin flatwashers and 1/4" x 2" cotterpins . **Ports must face upward.**

6. Pull rod of 3 1/2" x 8" cylinder out far enough to connect rod end clevis to slot in winglift bracket on right centre wing frame. Connect with 1" x 5" (126mm) cylinder pin flatwashers and 1/4" x 2" cotterpins. **Install two stroke control collars over cylinder rod.**

7. Install single-ended wing hold-up frame (clevis facing out) on front-to-back tubes of the right centre wing frame about 6" (150mm) behind front cross tube. Install with 3/4" x 4" x 5 1/2" u-bolts lockwashers and regular nuts. Leave fasteners loose until wing folds are checked. Insert 1" x 6" handle pin

into spare hole in winglift bracket on R.h. outer wing, and secure with 1/4" klik pin.

8. Install double ended wing hold-up frame (end with holes facing centre frame) on angled front-to-back tubes of left centre wing frame, about 22" (560mm) behind mid-cross tube, to align with pinning clevis on centre frame. Install with 3/4" x 4" x 5 1/2" U-bolts lockwashers and regular nuts. Leave fasteners loose until wing folds are checked. Insert 1" X 6" handle pin into storage hole on hold-up frame, and secure with klik pin.

9. Install transport axle adjustment bar on centre frame. Insert threaded end down through frame lug above transport axle, with 1" regular nut above lug and 1" locknut below lug. Fasten rear end of bar to vertical frame lug with 1" x 3" capscrew and locknut.

10. Connect barrel end of 3 1/2" x 8" cylinder to transport axle adjustment bar with 1" cylinder pin and clips. Cylinder hangs down with ports facing the center. Connect rod end of cylinder and hold up bar to lug on transport axle using 1" cylinder pin and clips.

11. Install SMV sign to rear of centre frame visible to traffic from rear of machine.

12. Install red reflectors on outermost rear corners of frames when wings are folded up.

13. Install amber reflectors on outermost front left corner of frame when wings are folded up.

<u>HYDRAULIC ASSEMBLY</u>, Page 62-85

1. Attach steel hydraulic tubes to hitch tongue, tubes on left side, with hydraulic tube clips and 3/8" x 2 3/4" capscrews with lockwasher. Leave clips loose until all hoses have been attached.

2. Attach 2 sets of steel hydraulic tubes to forward front-to-back tubes on centre frame, tubes on left side with hydraulic tube clips and 3/8" x 2 3/4" capscrews with lockwasher. Leave clips loose until all hoses have been attached.

3. Connect rear ends of hitch tongue hydraulic tubes to front ends of centre frame hydraulic tubes with 33 in. (850mm) hoses.

4. Connect 90 in (2300mm) hoses to the front end of the hitch tongue hydraulic tubes. Attach male quick couplers (not supplied) to the forward end of these hoses.

<u>Depth Control</u>, Page 70-79

5. Attach 37 degree male tees to the rear end of the two inside steel hydraulic tubes on the left side of the centre frame.

6. Attach 37 degree male x 1/2" NPT. male elbows to both ports on all depth control cylinders. The 37 degree male end on elbow must point forward.

7. Connect barrel end port on right master cylinder on centre frame to one of the tee fittings on the rear end of steel hydraulic tube with 39 3/8" (1000 mm) hose.

8. Connect other side of tee in 7. above to the barrel end port on the left master cylinder with 78" (1980 mm) hose.

9. Connect the rod end port of the master cylinders to the barrel end port of the 8" slave cylinders on the centre wing frames with 100" (2540mm) hoses.

10. Connect the rod end port of the 8" cylinders to the barrel end port of the slave cylinders on the outer wing frames with hoses. Refer to pages 70-79 for correct hose lengths.

11. Connect the rod end port of the slave cylinder on the left outer wing frame with the tee on the rear end of the other hydraulic tube on the centre frame.

12. Connect other side of tee in step 11. above to the rod end port of the slave cylinder on the right outer wing frame.

13. Secure the depth control hoses to the front-to-back tubes on each frame with hose clips and 3/8" x 1 1/4" serrated flange hex screws. The hoses that cross the centre frame will be secured to shank assemblies mounted to the forward cross member. Ensure hoses have sufficient slack at each hinge joint to allow for frame flex and folding for transport.

Wing Lift, Page 62-67

14. Install a flow restrictor into the shaft end ports of the two outer winglift cylinders and centre winglift cylinder.

15. Install all hoses and fittings into hydraulic cylinders as per the drawings on pages 62-67.

16. Secure the winglift hoses to the winglift brackets with hose clips and 3/8" x 1 1/4" flange screws. Ensure hoses have sufficient slack at hinge joints to allow frames to flex. Ensure hoses will not interfere with depth control cylinders.

HYDRAULIC SYSTEM CHECK

1. Connect unit and hydraulics to tractor and check hydraulic reservoir. Top up if necessary.

2. Grease all axle pivot brackets, adjustable linkages, and frame hinge points.

3. Activate depth control system holding tractor valve open for several seconds with cylinders fully extended to synchronize all cylinders. Ensure both depth cylinder hold-up bars on centre frame are **DISENGAGED**. Cycle cylinders up and down several times to distribute grease in bushings and to bleed air from system.

4. On last cycle stop when cylinders are fully extended and **ENGAGE** hold-up bars. Lower unit until weight bears fully on hold-up bars. Activate transport wheel circuit. Be sure the transport wheel is adjusted to the same height as the adjacent depth wheel.

5. Activate winglift systems slowly and watch for binding or component interference especially hydraulic hoses near the hinge point.

6. Adjust stroke control collar on hinge stiffener cylinder so when cylinder bottoms -out on collars the hinge below this cylinder is slightly down.

7. Position wings almost at top, stop and check hold-out arms to see if they are properly aligned with frame members.

CAUTION **If arms require adjustment lower unit to ground and adjust. Do not adjust in raised position.**

8. Adjust and tighten hold-out arms, cycle wings several times to bleed air. Lower wings to ground, fully extending cylinders.

9. Level frame before attaching shank assemblies,

CAUTION **Block up frames to prevent them from settling while working around or under machine.**

OPTIONS - ASSEMBLY

MEDIUM DUTY CULTIVATOR SHANKS AND HOE SHANKS

- Refer to pages 21-35 for shank, set-back, and stub tube locations for the spacing required.

1. Install a shank setback brackets and stub tubes where required for the correct spacing of the machine using two 3/4" x 4" x 5 1/2" U-bolts, lockwashers and hex nuts. On long stub tubes the angle brace faces forward.

2. Shank assemblies are preassembled with mounting hardware loosely installed. Remove the retaining plates and install assemblies on the frame in the positions detailed in appropriate shank spacing drawing. Clamp assemblies to cross tubes with the retaining plate, using 5/8"x 6" capscrews, lockwashers, and hex nuts.

3. Secure the depth control hoses that cross the centre frame to the two shank assemblies mounted on the forward cross tube using L-brackets, hose clips, 5/16" x 7/8" capscrews and flange nuts.

PACKER WHEEL ATTACHMENT

1. Loosely mount two packer holder bracket assemblies, spaced at approximately 52-3/4" (1340mm) center to center on the rear frame member of each section of the multitool as detailed in pages 21-35 (same figure as for shank locations above).

2. Install packer frames to the holder assemblies using 5/8" x 3-1/2" capscrews and locknuts. Select a rear hole setting in the holder that supports the packer frames high enough to install packer gangs.

3. Start behind center frame by centrally positioning a packer gang so each wheel closely aligns with its corresponding shank on the frame.

NOTE

Individual shank assemblies can be moved laterally on the frame to improve alignment. Final packer alignment can be made in the field.

4. Attach packer bearing standards to the cross tube on the packer frame using 1/2 x 3 x 3-1/2" U-bolts and lock nuts. If the forward tubes and/or braces on the packer frame interfere with the U-bolts the holder assemblies can be shifted on the multi-tool to move the packer frame relative to the bearing standards.

5. Once the packer gang is properly aligned and all fasteners are in place, tighten the bearing standards to the packer frame first, packer frame to holder assemblies next and finally tighten the holder assemblies to the frame of the multitool.

6. Position another packer gang on either side of the center gang with one row spacing between the gangs. Repeat steps 3, 4 & 5 above.

7. Continue until all packer gangs are installed behind their respective frames.

8. The height of the packer wheels can be adjusted by selecting a different hole setting in the holder bracket. Initial height can be set so bottom of the packers wheels are running at the same level or slightly below that of the ground engaging tools. Readjust in the field if necessary (see Field Adjustments).

9. The spring force on the packer wheels should be set in the field as per Field Adjustments.

WEIGHTS

CAUTION

Raise wings slowly after weights are installed, checking for interference. Be ready to stop quickly to avoid damage to machine. Addition of weight attachments may make the machine back heavy. Weighted machines should only be transported by a large truck or tractor. It is recommended that weight be added to the front as well to balance machine. It is also recommended that the entire unit, including the wings, be lowered to the ground for storage. Mounting hitch jack to rear will steady machine. Do not transport machine with folded wings along steep side slopes. Weight imbalance may cause rollover.

Frame Weight Attachment Installation, Figure 8-5

CAUTION

Install weight attachments with unit hitched to tractor.

NOTE

Use no more than two cast iron weights (2 x 80 lbs) per frame.

1. Weights (1) can either be fastened to frame tubes as single units, Figure 8-5, with U-bolts (2), flatwashers (4) and locknuts (5) or as paired units, one above and one below frame tube or one on either side of frame. Connect with four 1/2" x 6-1/2" capscrews (3), flatwashers (4) and locknuts (5).

2. The most effective location for adding weights is as close as possible to each axle assembly.

IMPORTANT

Ensure weight attachments are positioned so there is no interference with axle/tire movements and with wing hold-up yoked ends when unit is folded up. Have someone view the depth control and wing-up procedure from a safe distance when checking for interference.

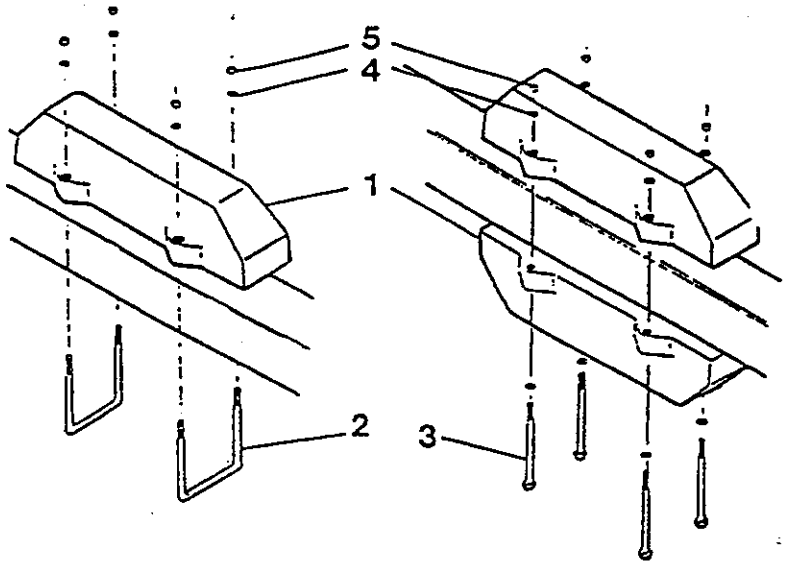
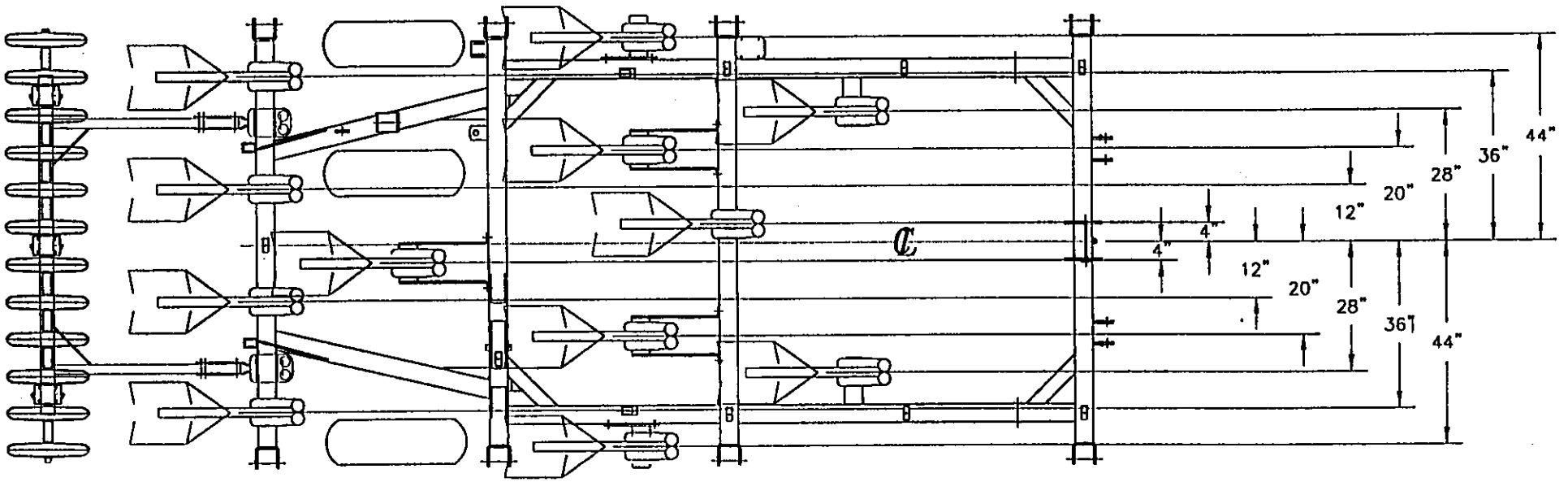
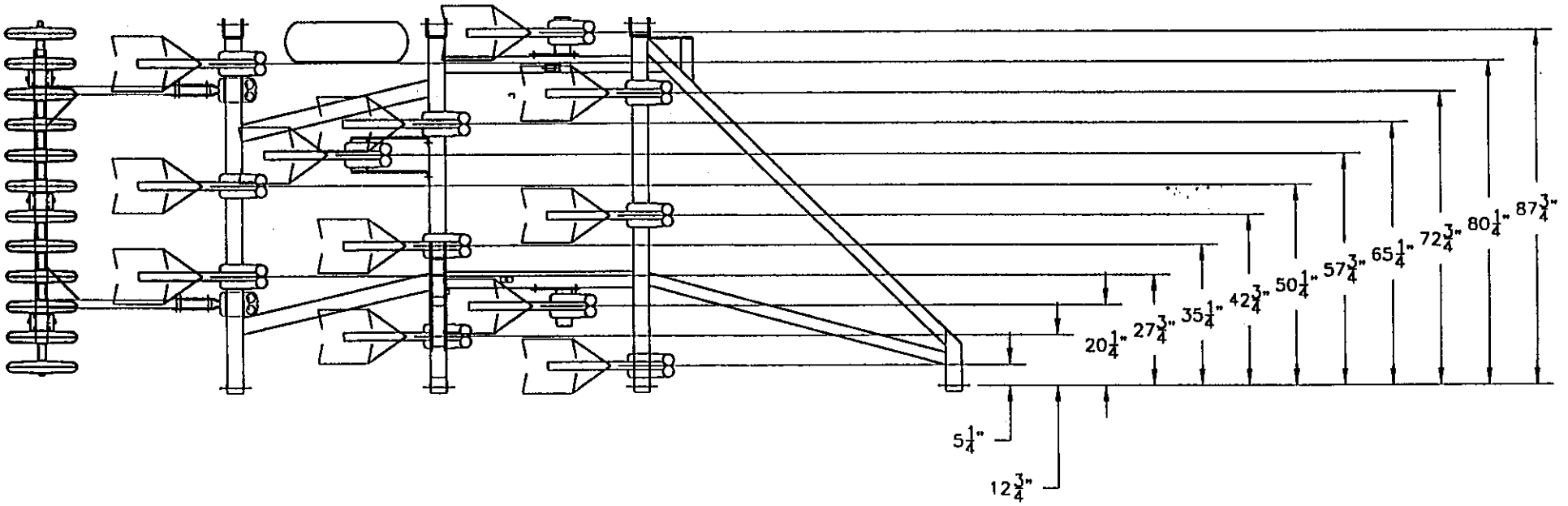


Figure 8-5: Weight Attachments

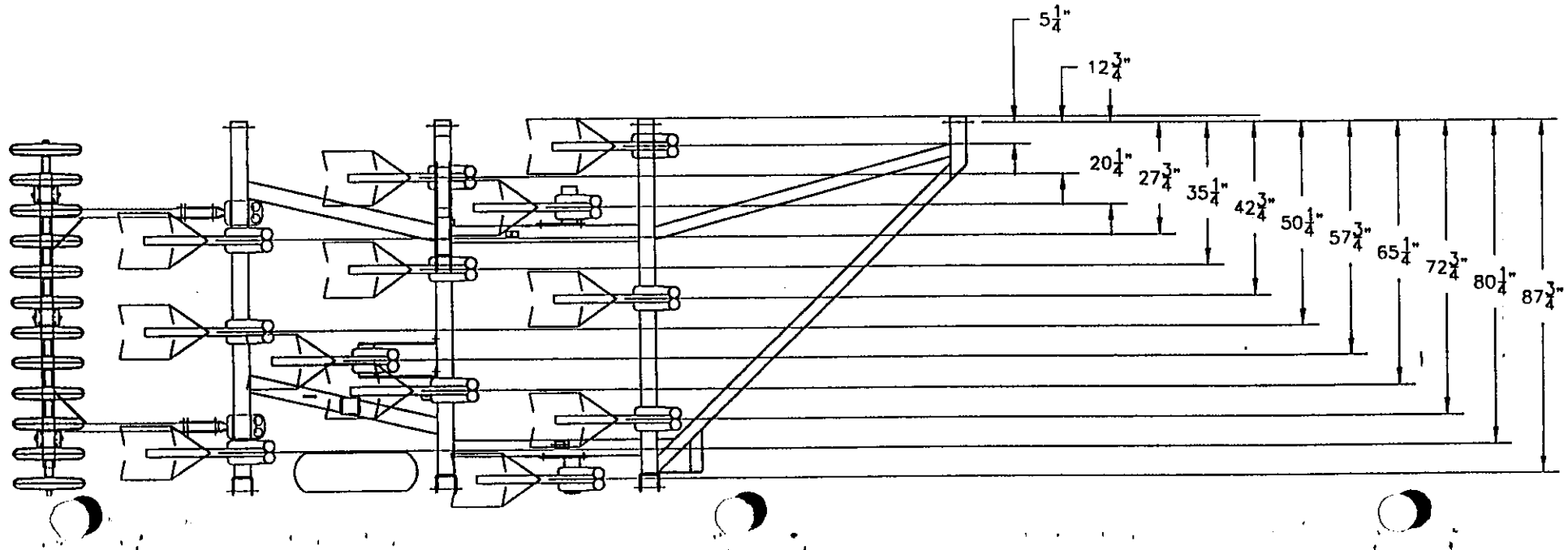
7–1/2" SPACING CENTER FRAME



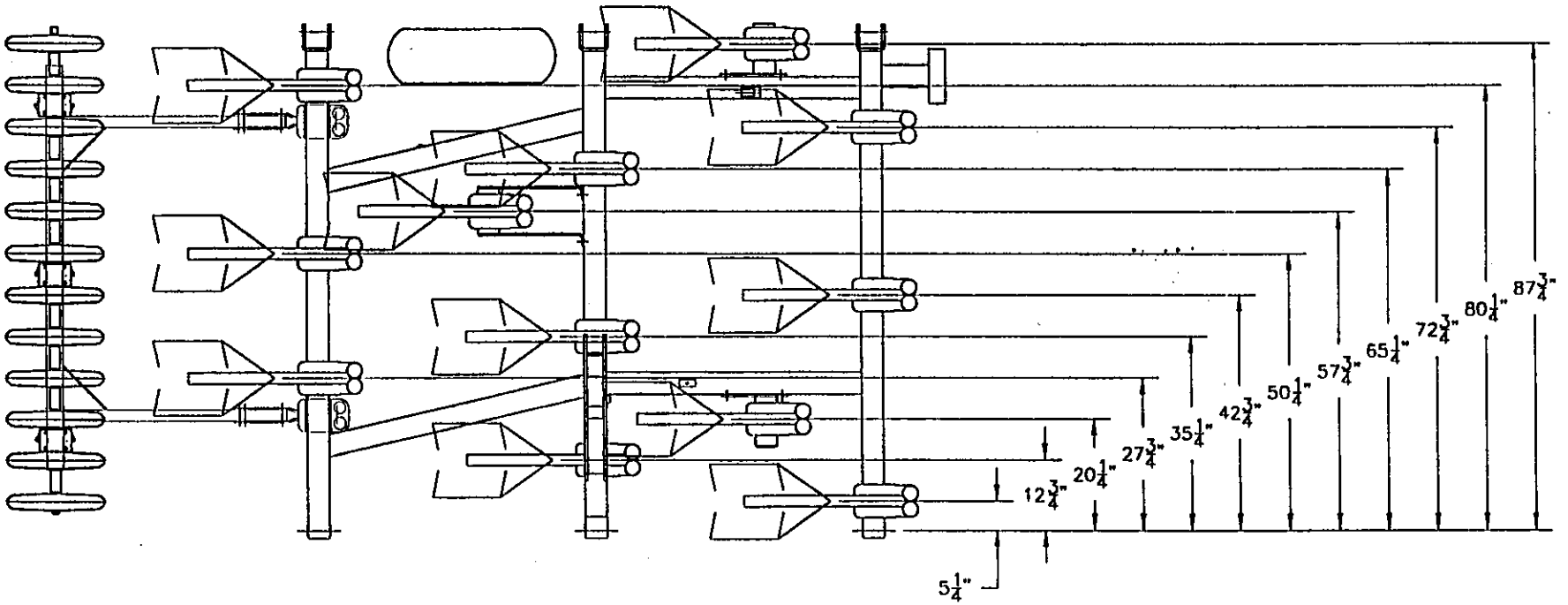
7-1/2" SPACING LEFT CENTER WING



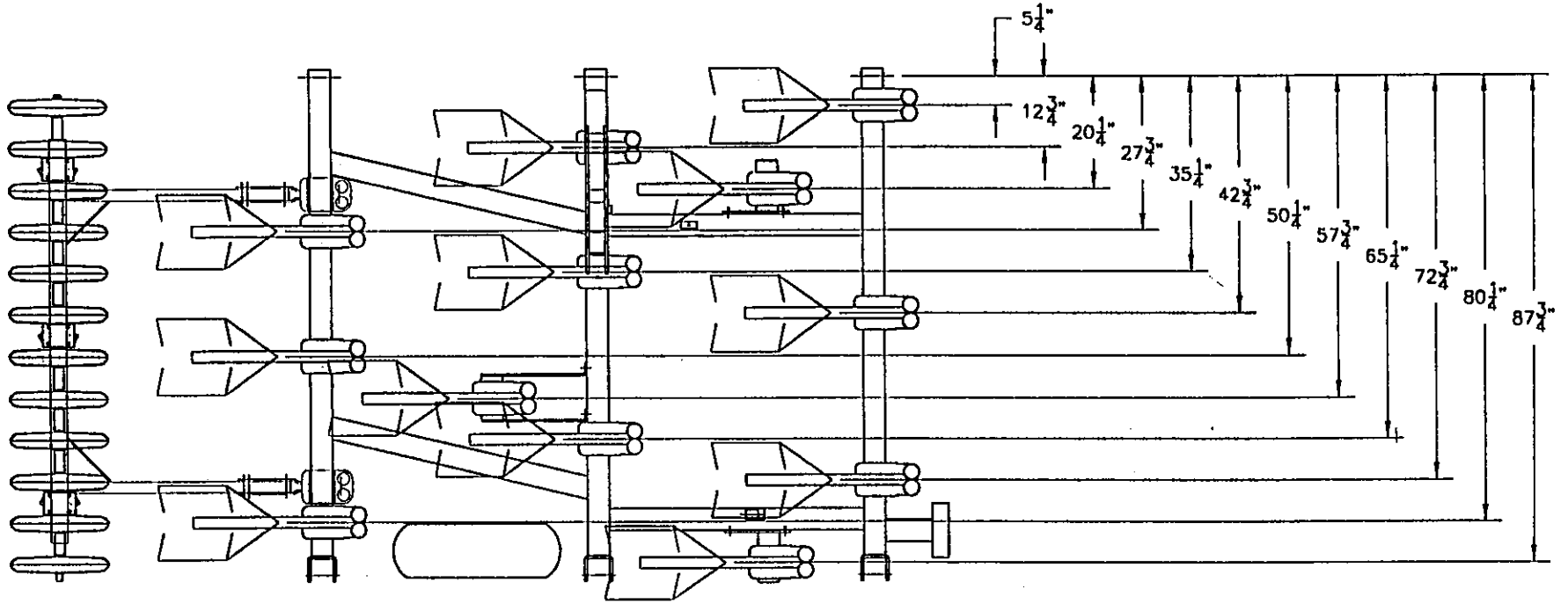
7-1/2" SPACING RIGHT CENTER WING



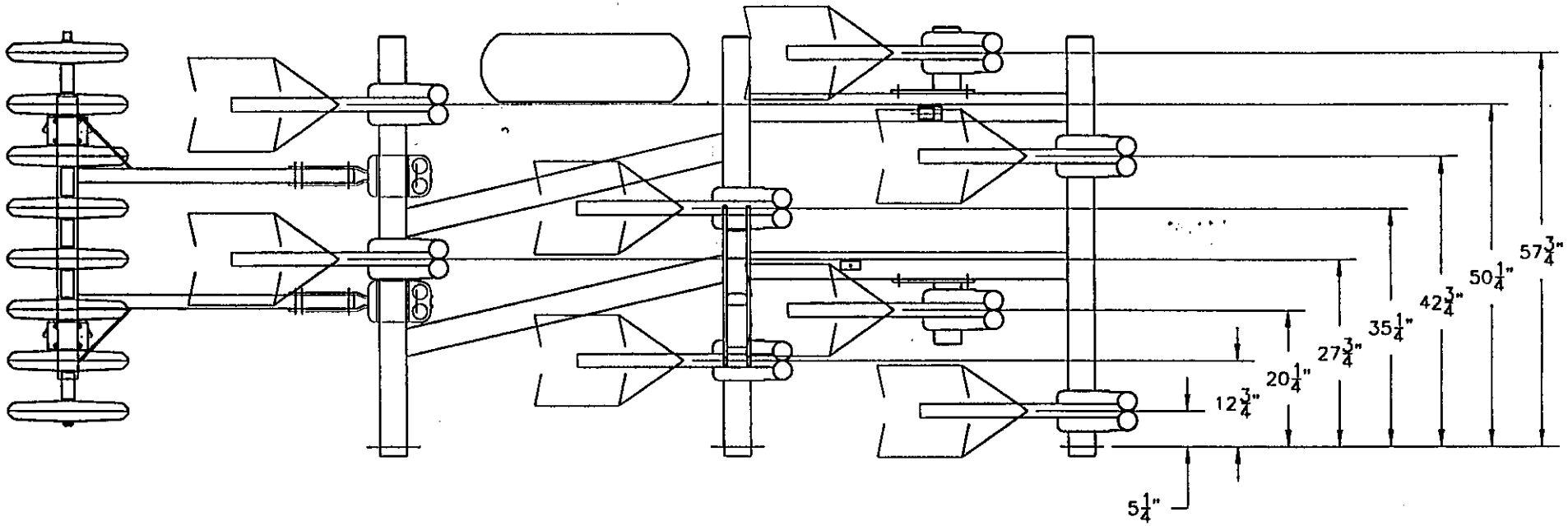
7-1/2" SPACING LEFT OUTER WING



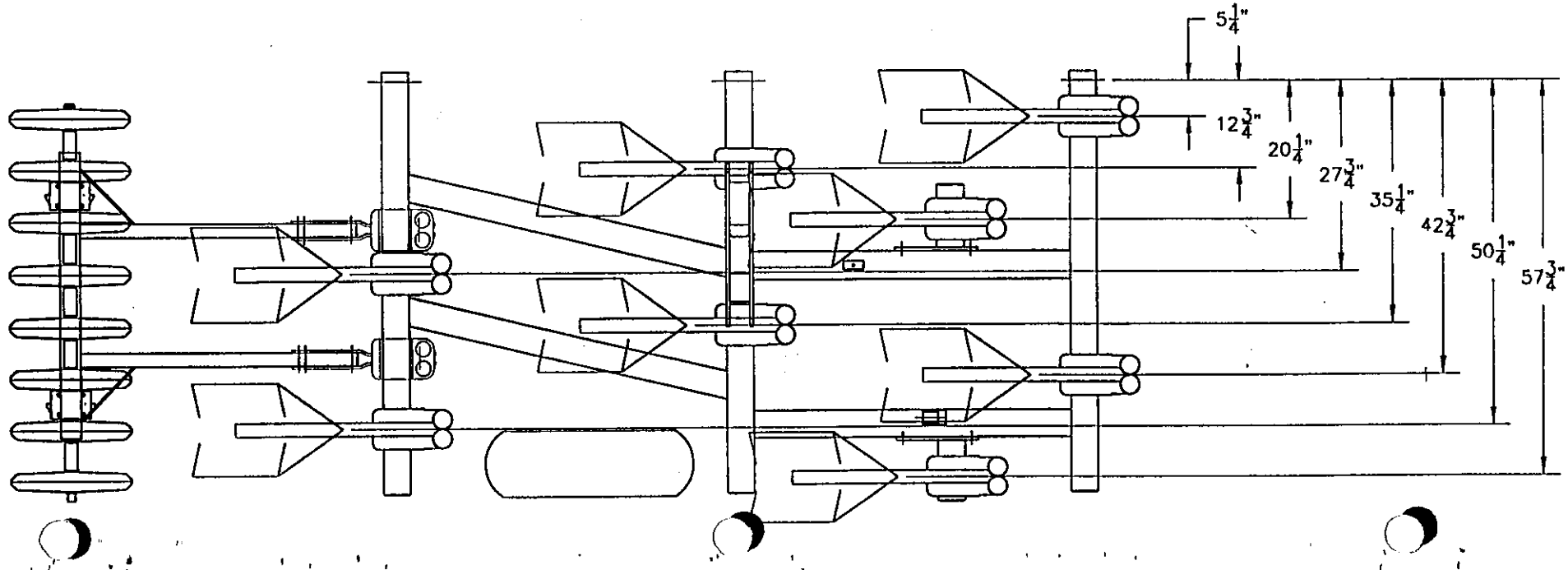
7-1/2" SPACING RIGHT OUTER WING



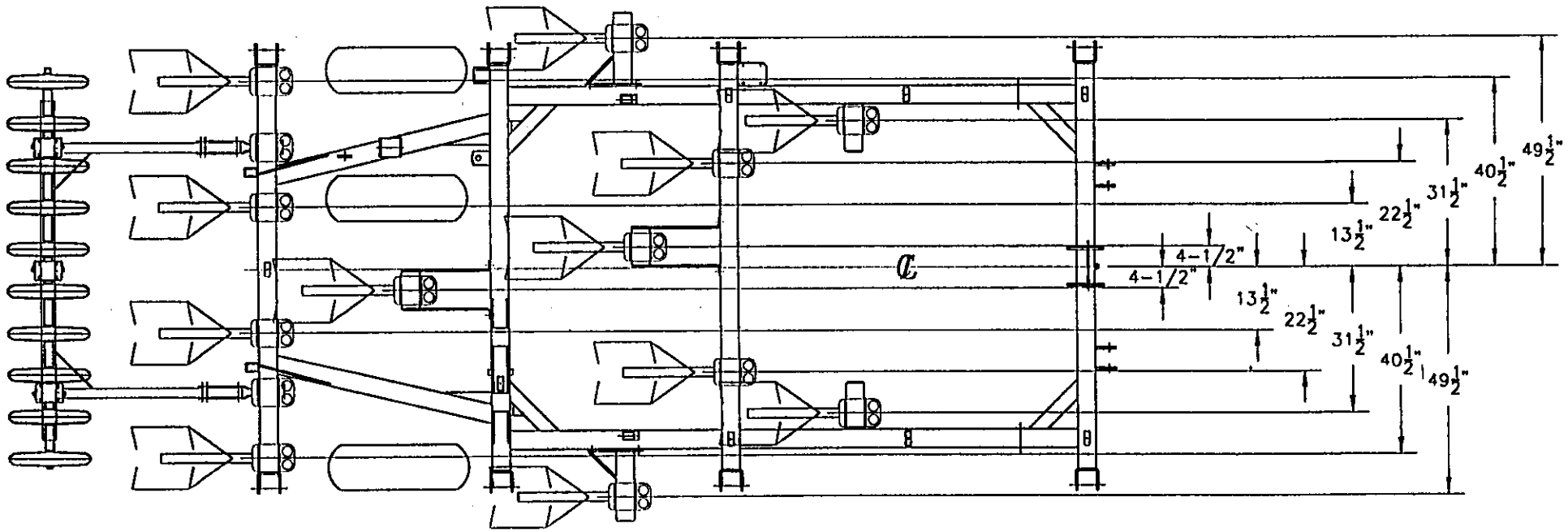
7-1/2" SPACING LEFT 5FT WING



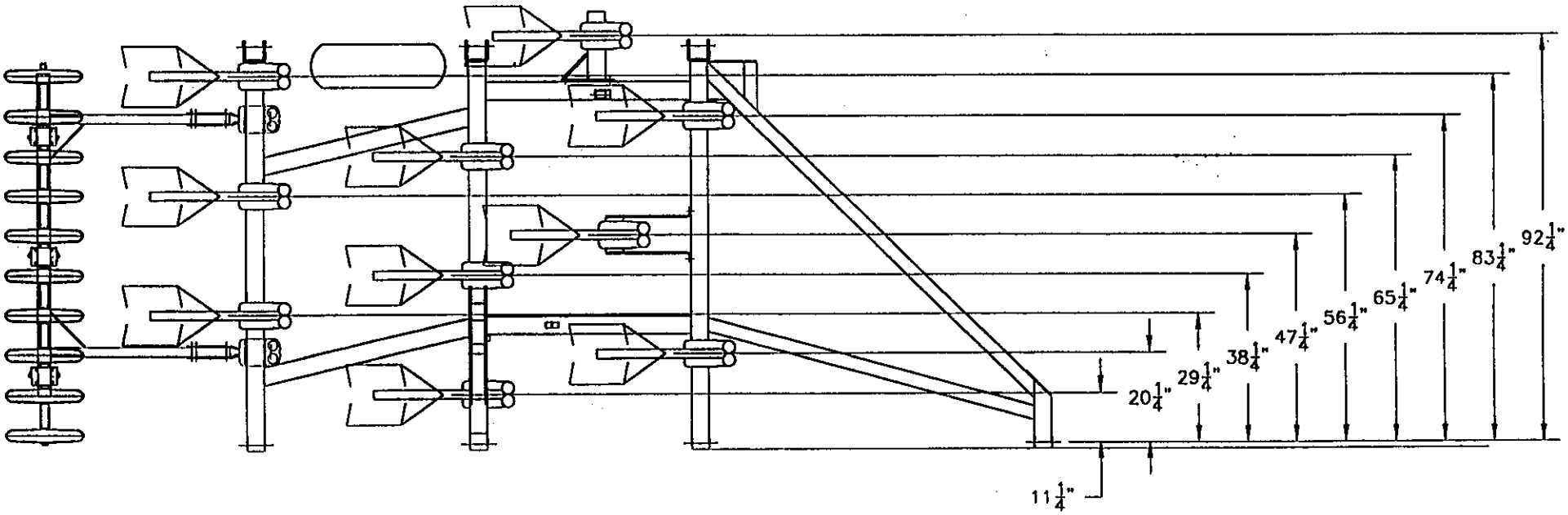
7-1/2" SPACING RIGHT 5FT WING



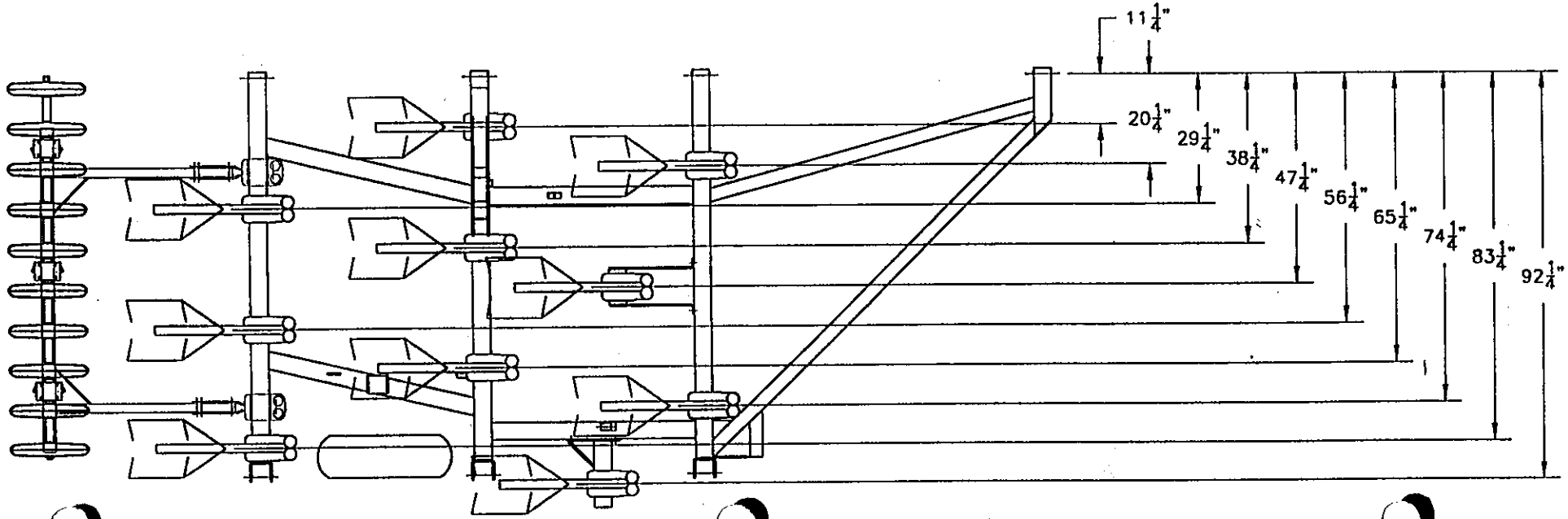
9" SPACING CENTER FRAME



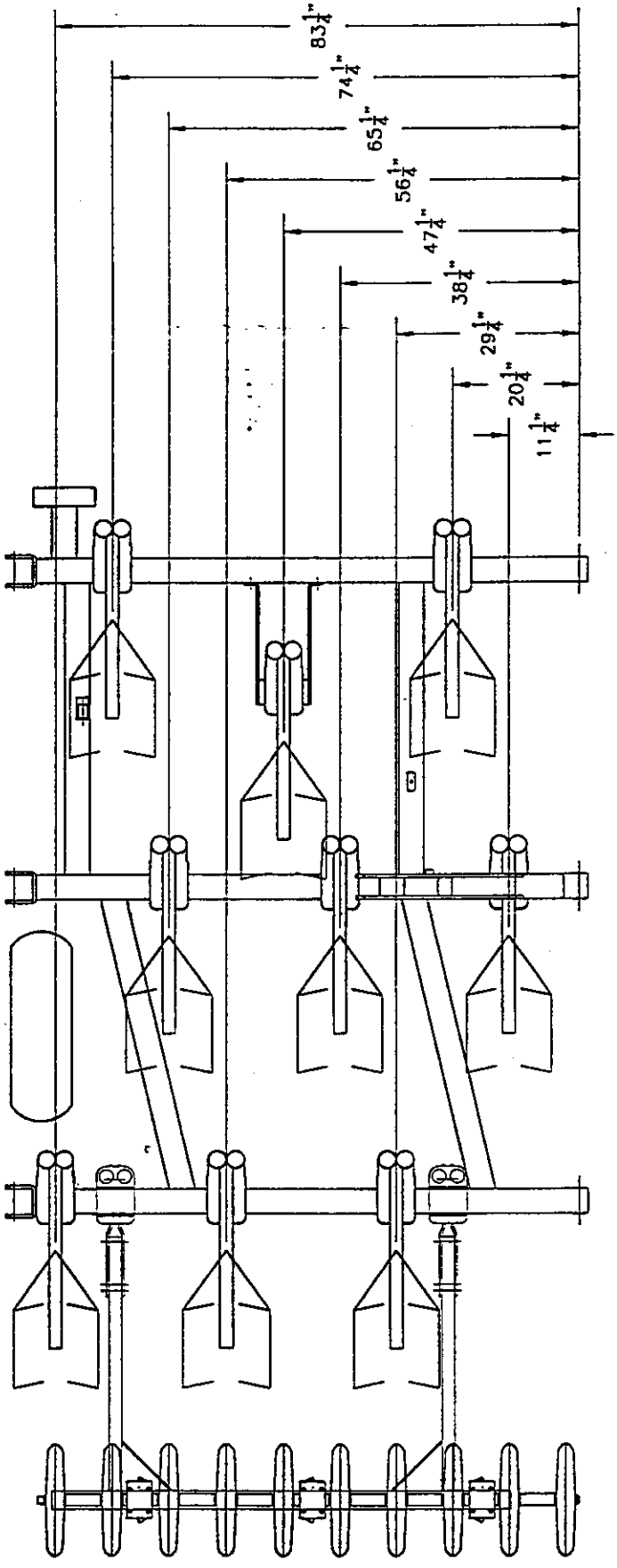
9" SPACING LEFT CENTER WING



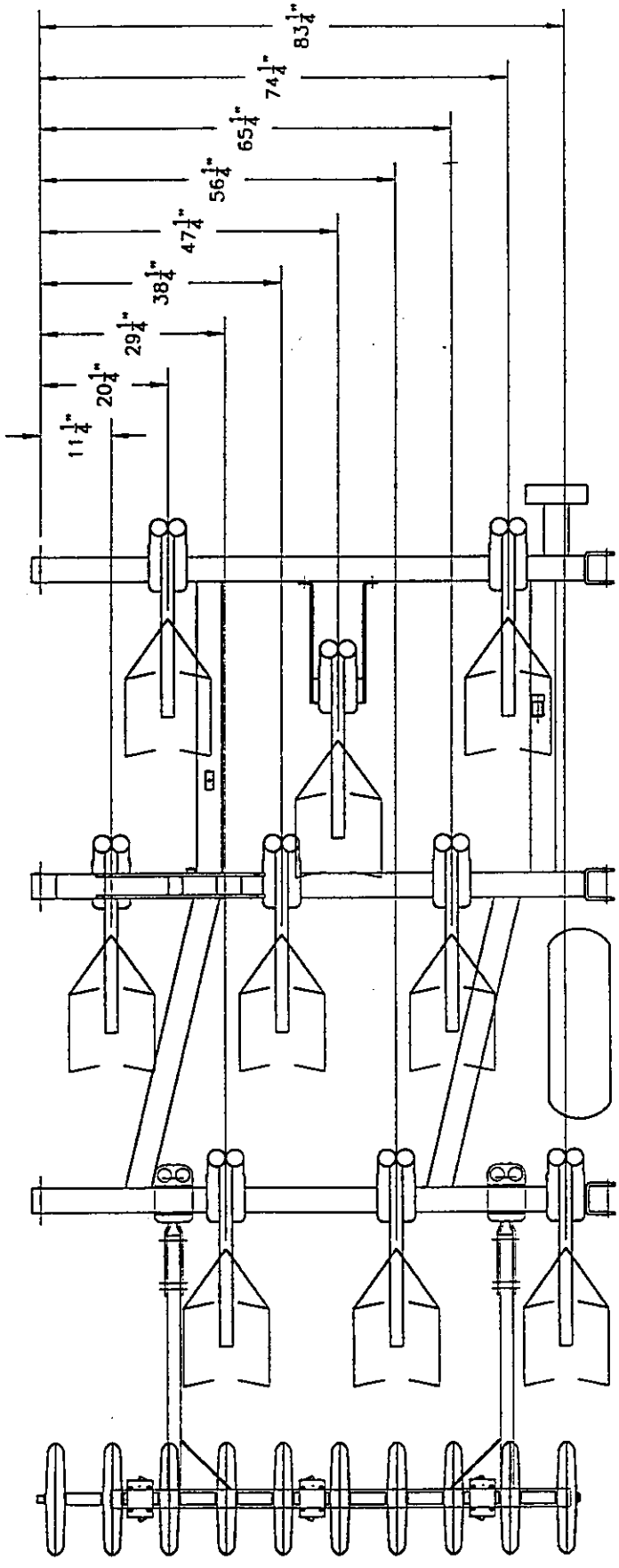
9" SPACING RIGHT CENTER WING



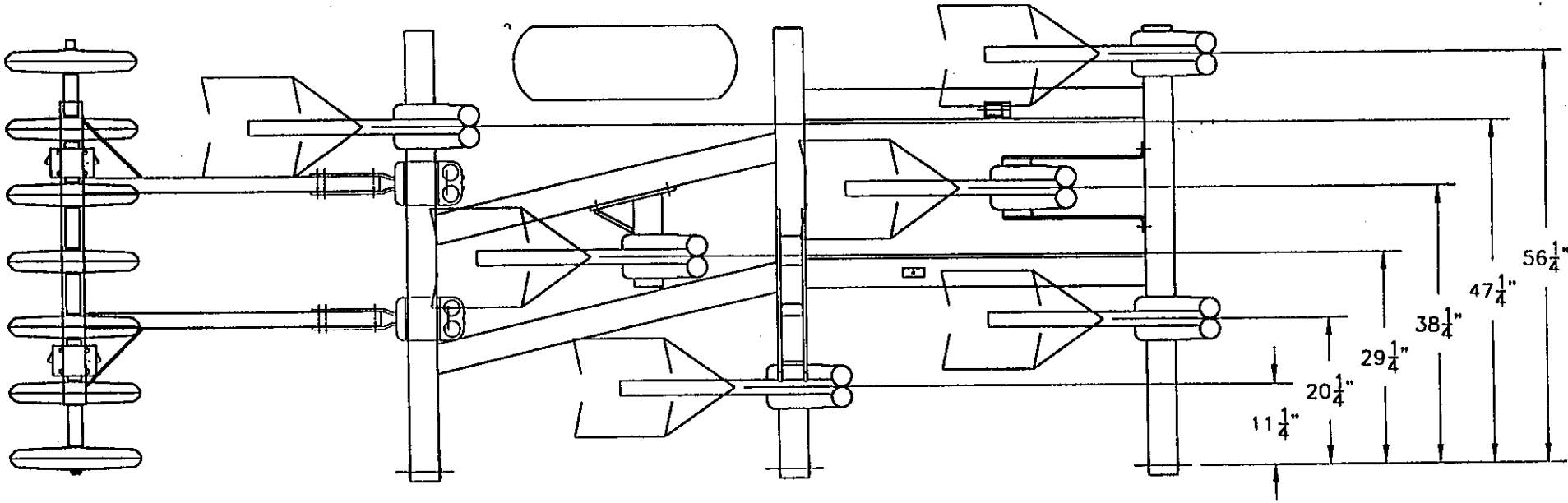
9" SPACING LEFT OUTER WING



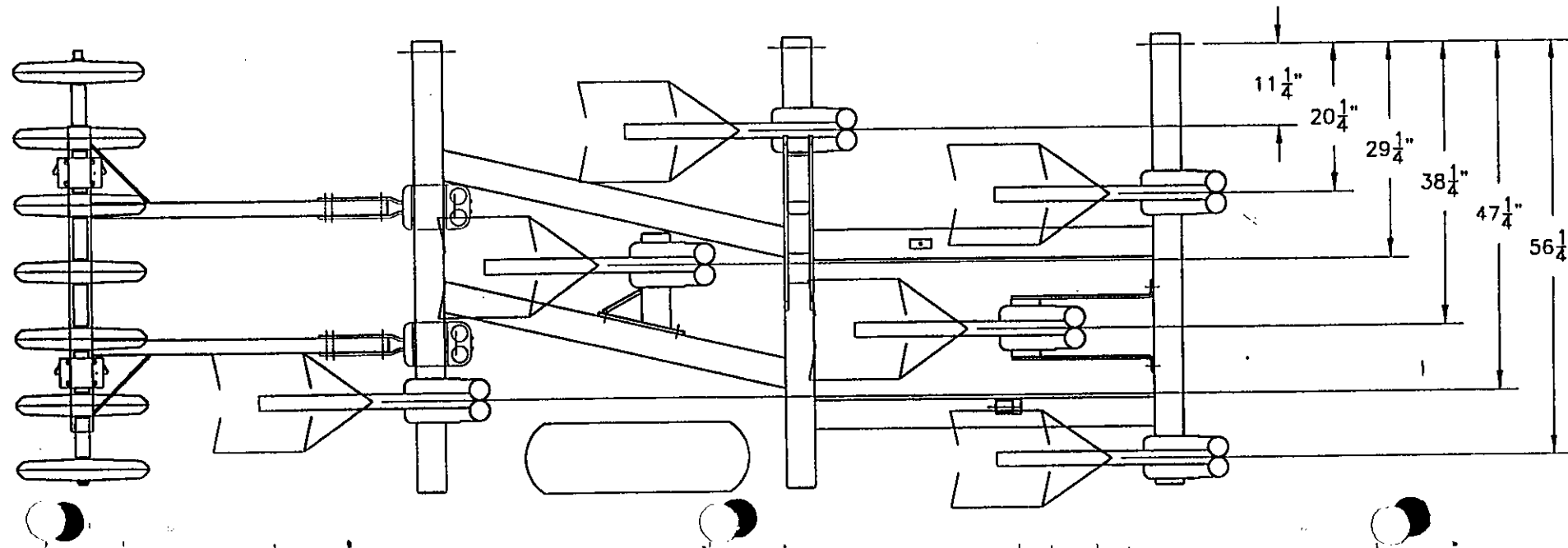
9" SPACING RIGHT OUTER WING



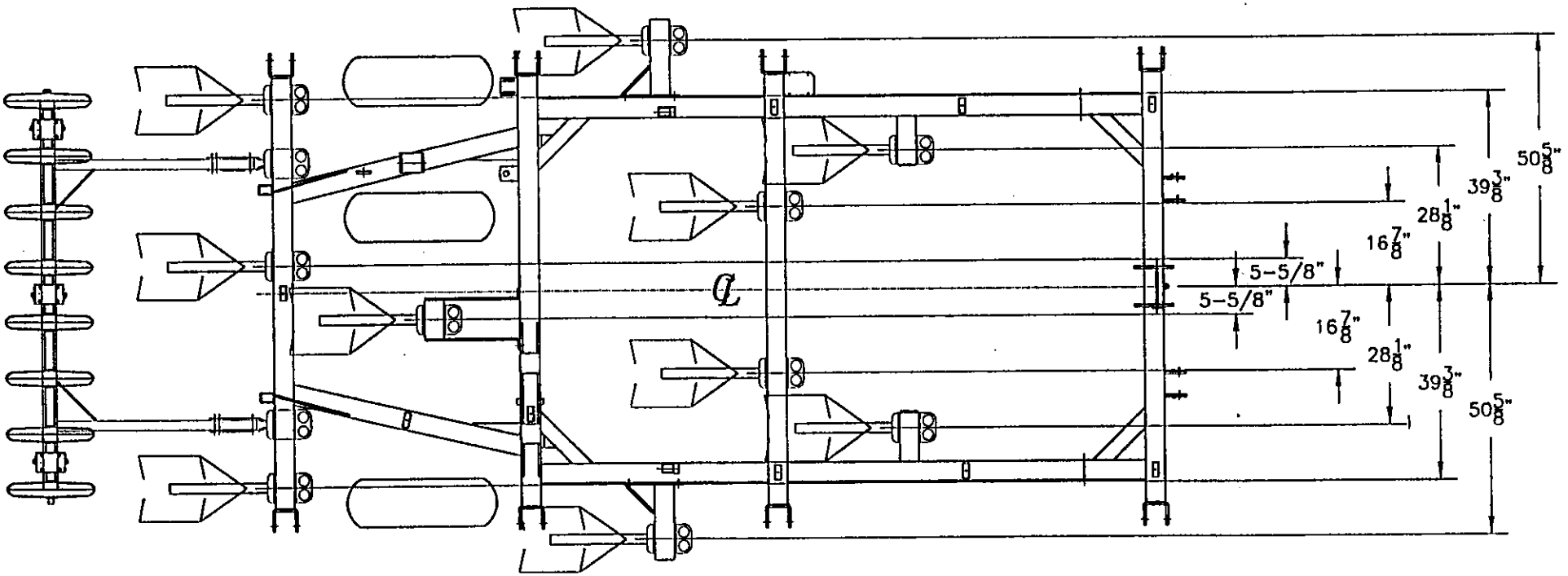
9" SPACING LEFT 5FT WING



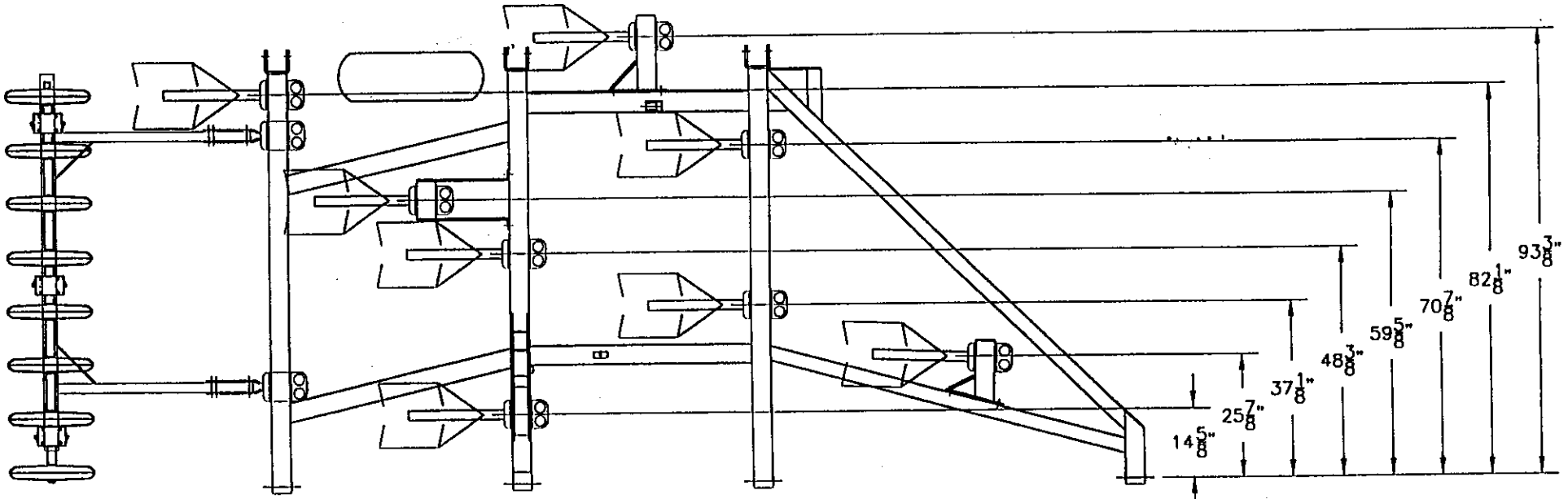
9" SPACING RIGHT 5FT WING



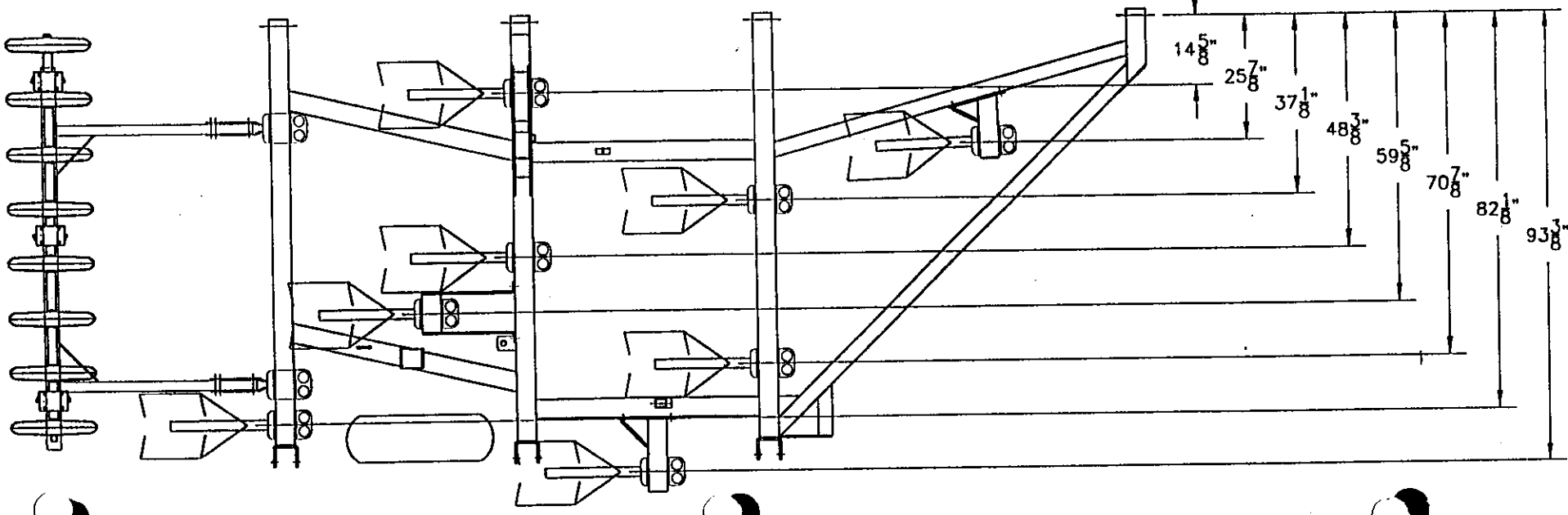
11-1/4" SPACING CENTER FRAME



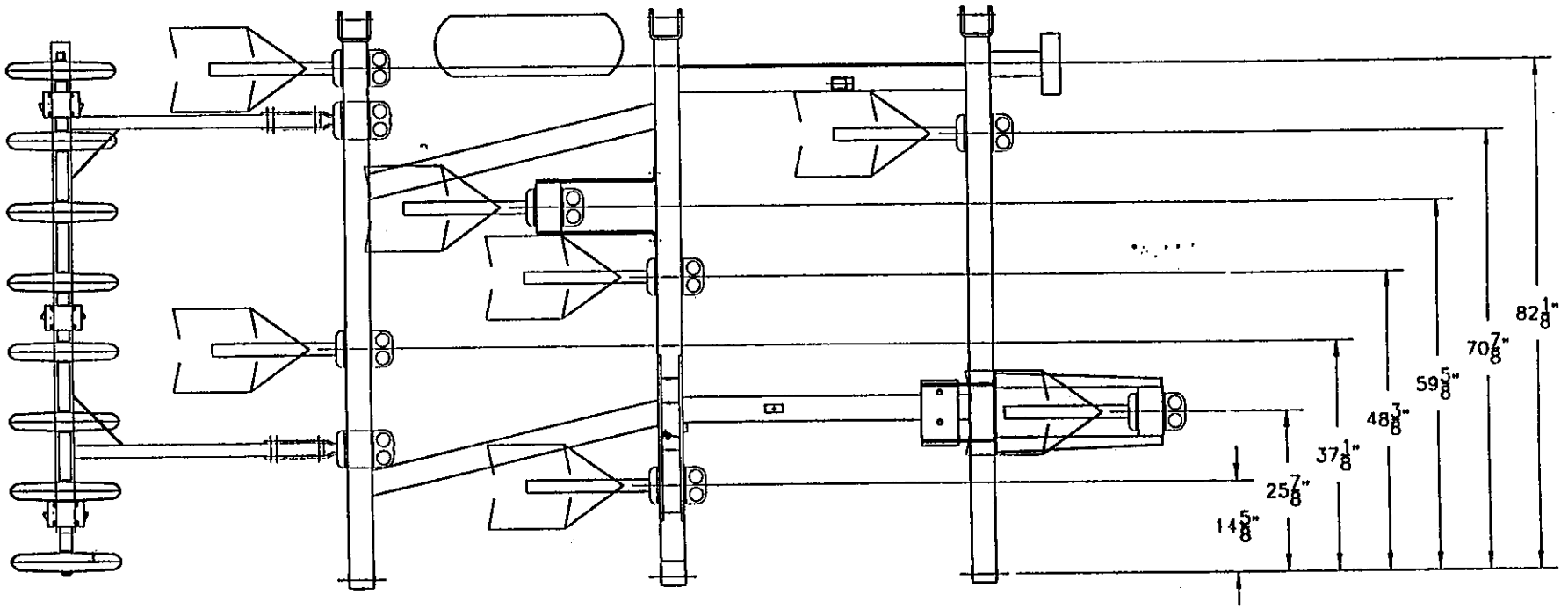
11-1/4" SPACING LEFT CENTER WING



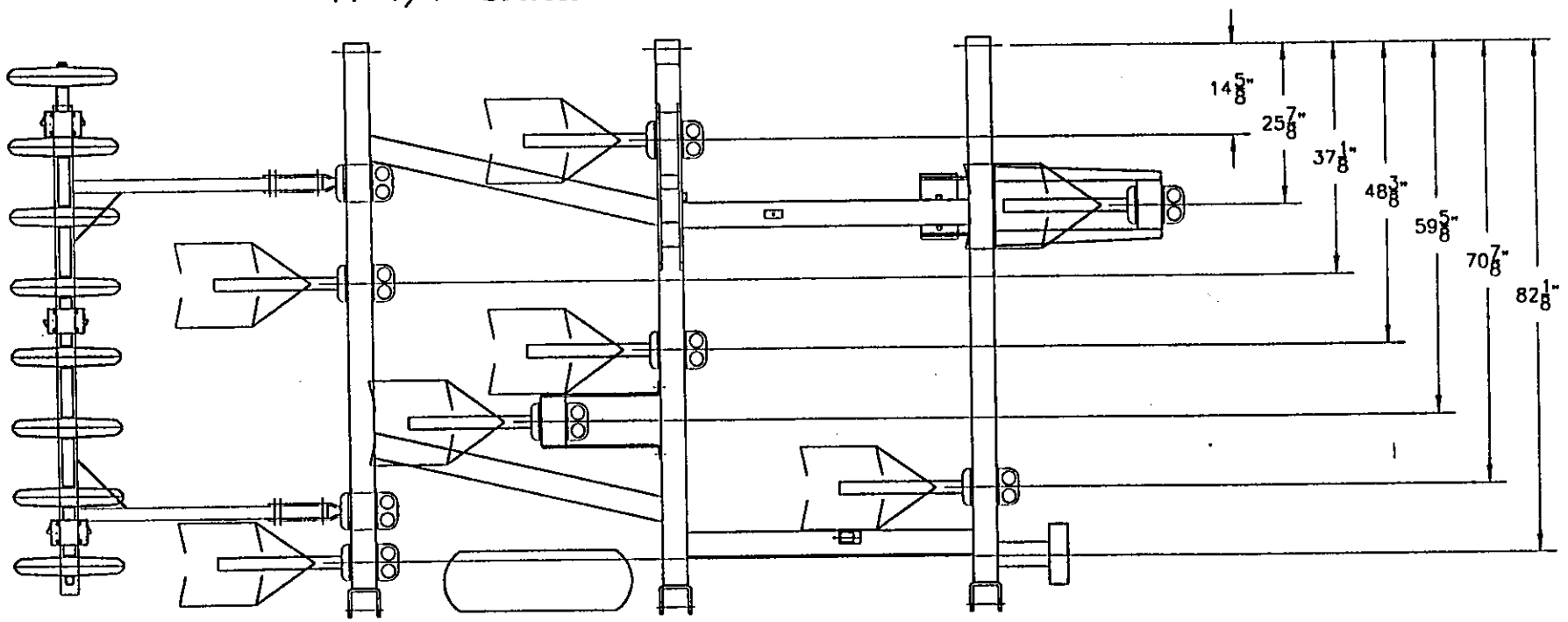
11-1/4" SPACING RIGHT CENTER WING



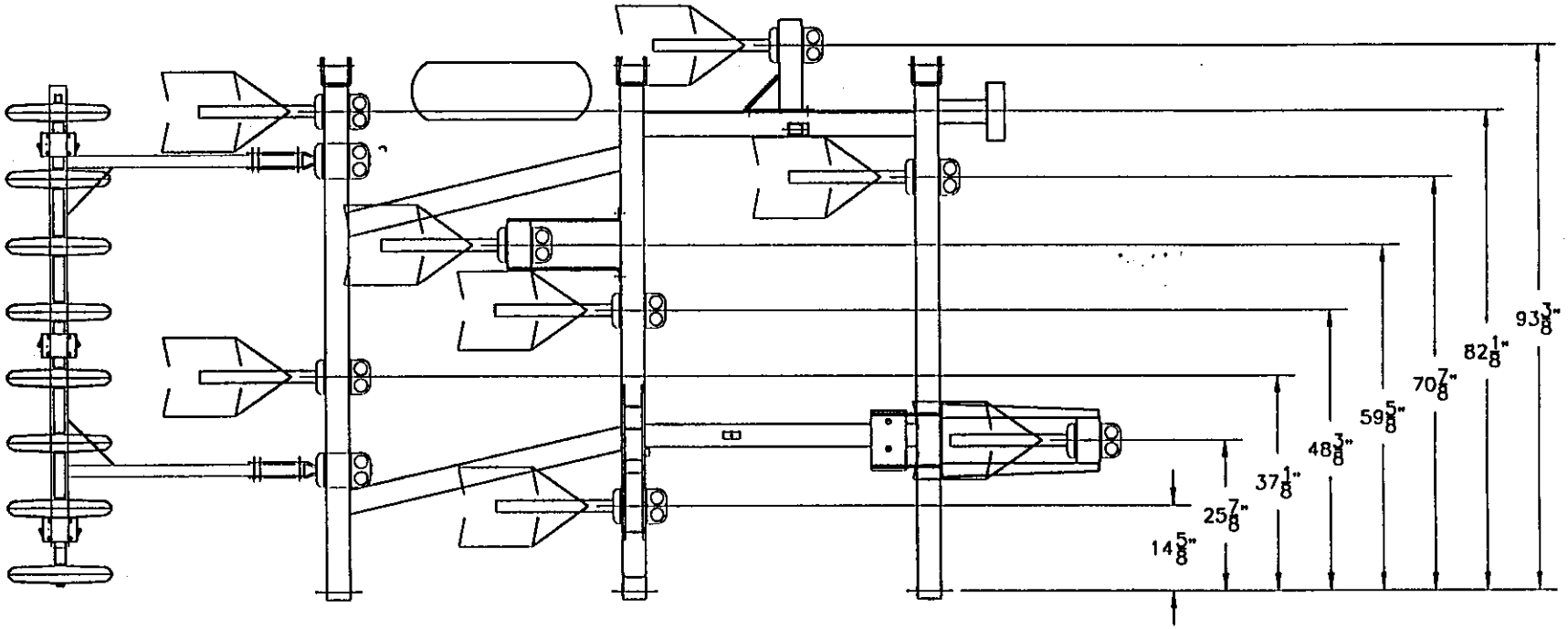
11-1/4" SPACING LEFT OUTER WING FOR 37.5FT



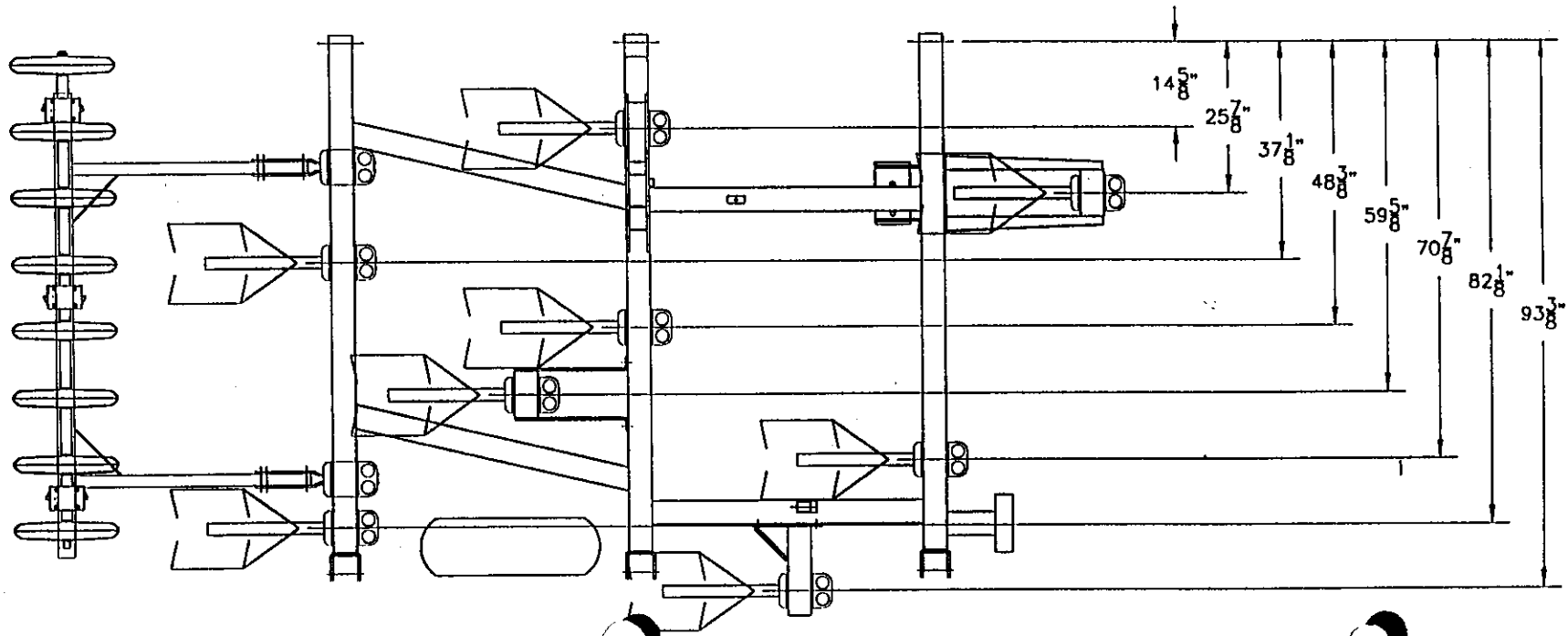
11-1/4" SPACING RIGHT OUTER WING FOR 37.5FT



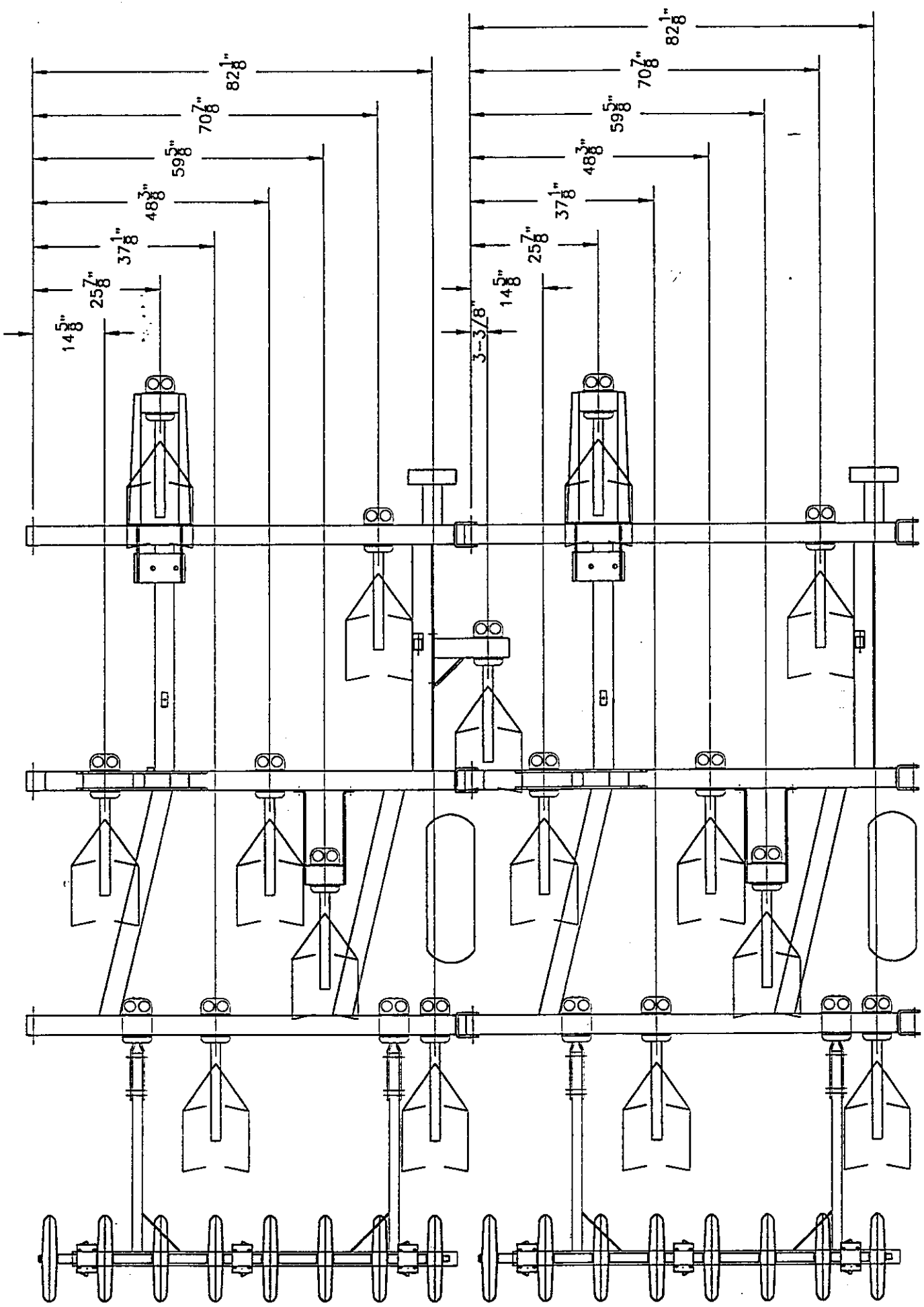
11-1/4" SPACING LEFT OUTER WING FOR 47.5FT



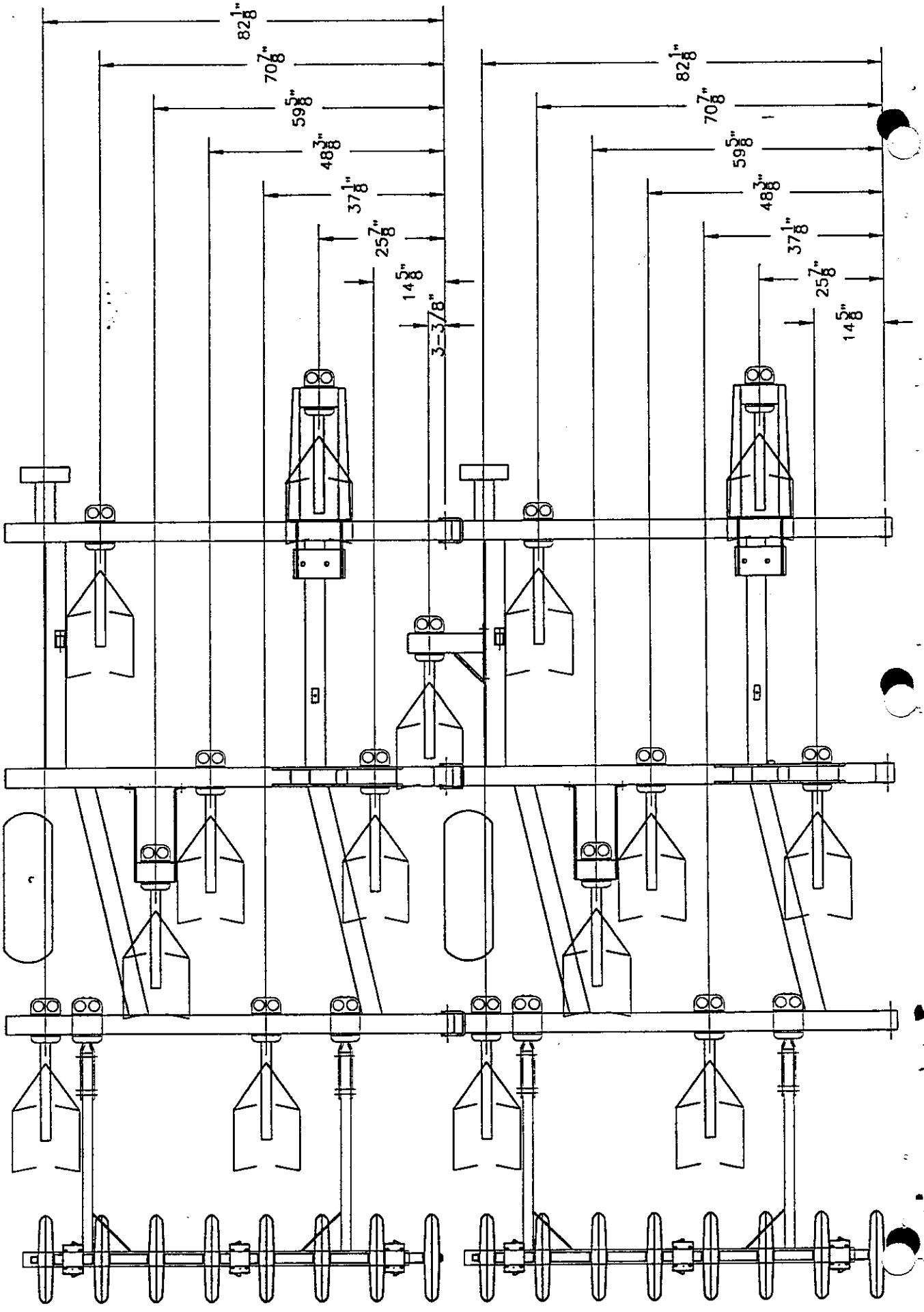
11-1/4" SPACING RIGHT OUTER WING FOR 47.5FT



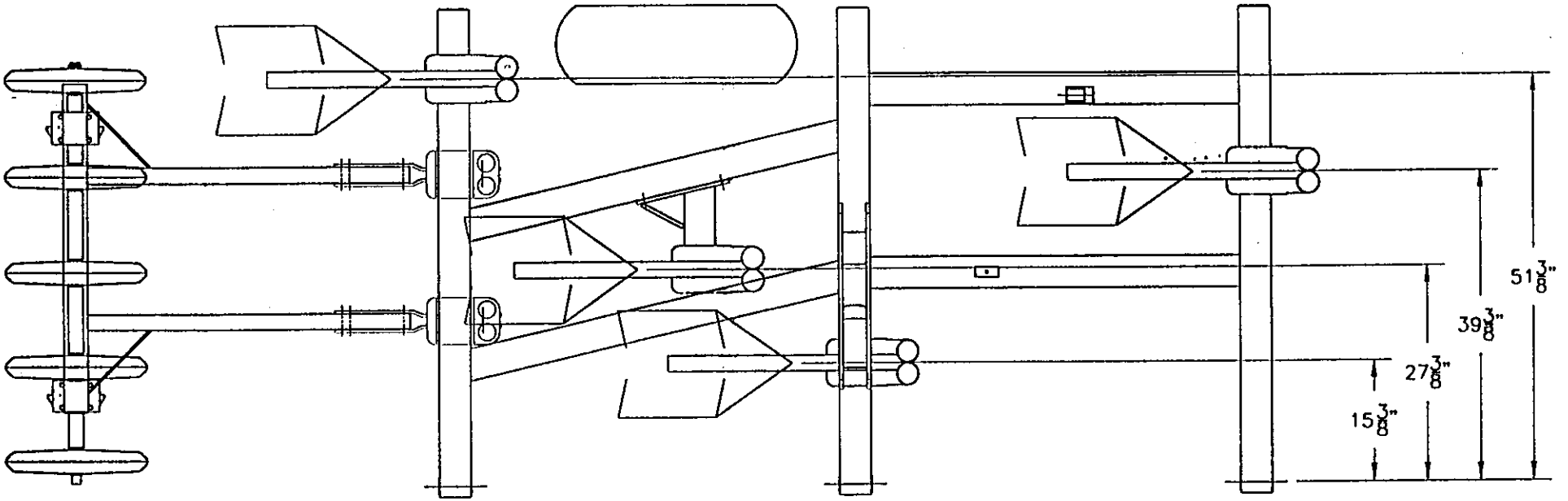
11-1/4" SPACING RIGHT OUTER WING FOR 52.5FT



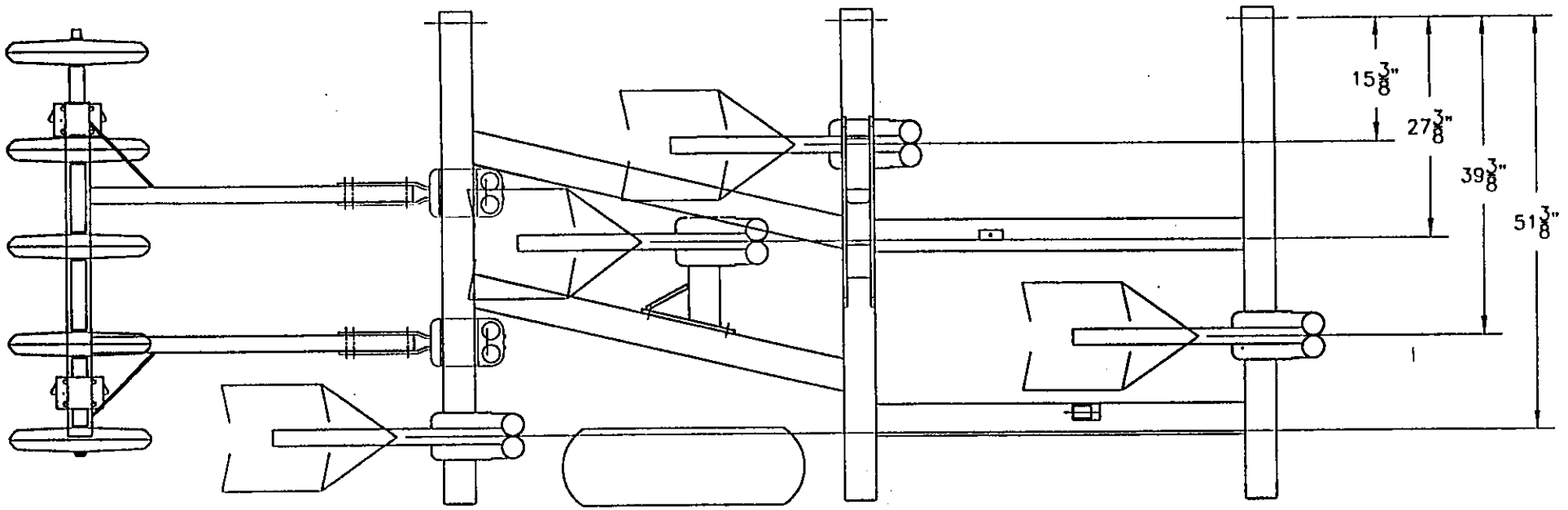
11-1/4" SPACING LEFT OUTER WING FOR 52.5FT



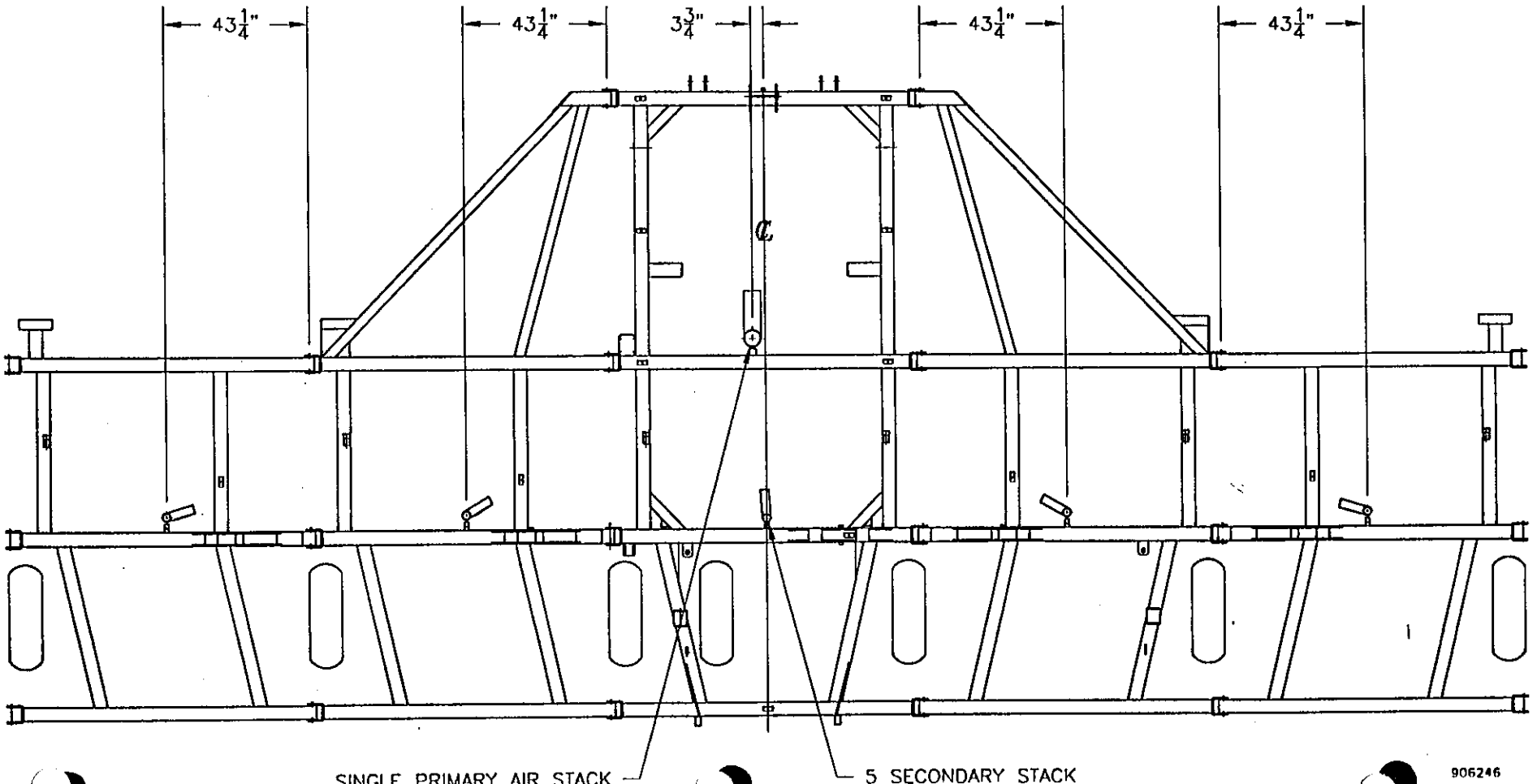
11-1/4" SPACING LEFT 5FT WING



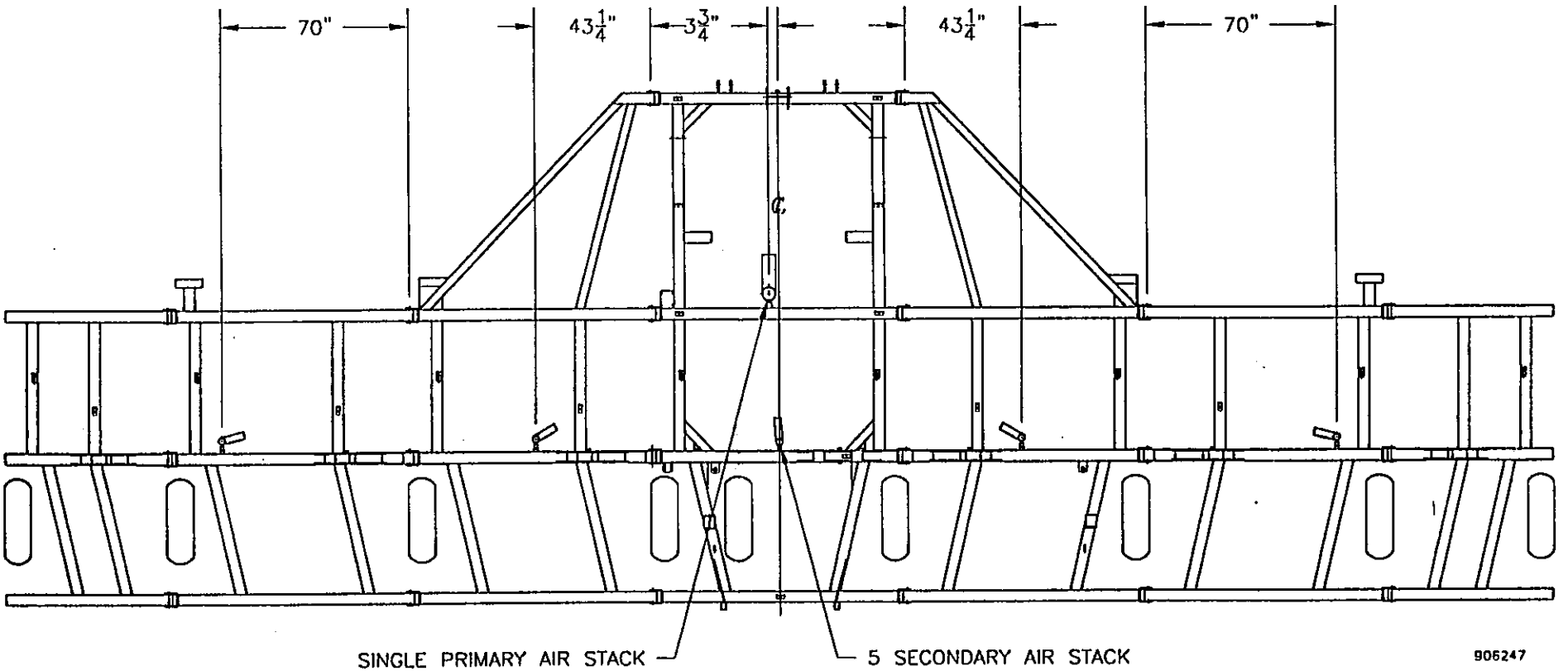
11-1/4" SPACING RIGHT 5FT WING



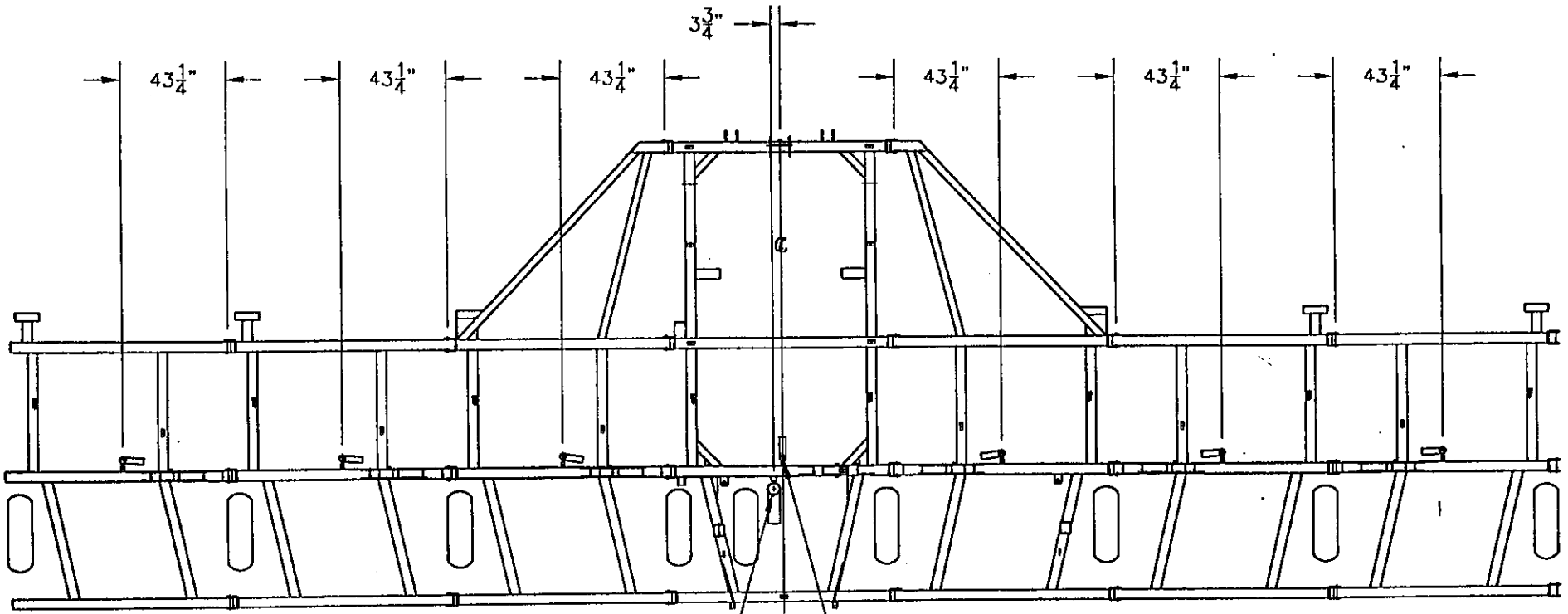
STACK LOCATIONS ON 37-1/2' MACHINE FRONT PULL - 11-1/4" SHANK SPACING



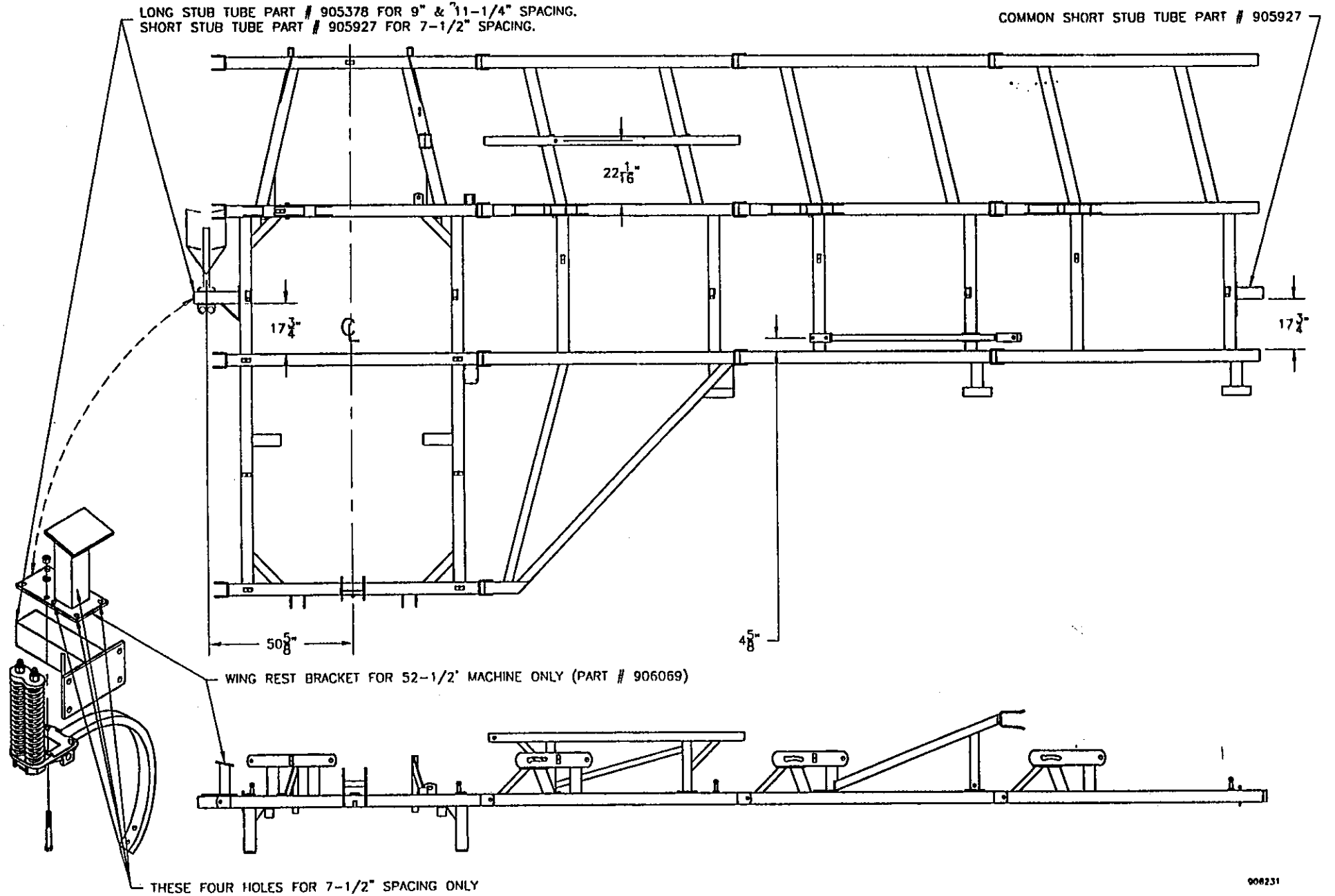
STACK LOCATIONS ON 47-1/2' MACHINE FRONT PULL – 11-1/4" SHANK SPACING



STACK LOCATIONS ON 52-1/2' MACHINE REAR PULL - 11-1/4" SHANK SPACING



WING REST LOCATION FOR 52.5' MACHINE WITH 11-1/4" SPACING


LONG STUB TUBE PART # 905378 FOR 9" & 11-1/4" SPACING.
SHORT STUB TUBE PART # 905927 FOR 7-1/2" SPACING.
COMMON SHORT STUB TUBE PART # 905927
22 1/16"
17 3/4"
17 3/4"
50 5/8"
45 5/8"
WING REST BRACKET FOR 52-1/2' MACHINE ONLY (PART # 906069)
THESE FOUR HOLES FOR 7-1/2" SPACING ONLY

4.1 Transportation

A) FIELD TO ROAD CONVERSION

1. Extend depth control cylinders fully.
2. Engage holdup bars over depth cylinders.
3. Relax depth control hydraulics allowing weight of machine to rest on cylinder hold-out bars.
4. Clear all trash away from shanks and wheels.
5. Remove marker if attached.
6. The transport axle cylinder will extend first.(The transport cylinder linkage should be set so the transport tire carries the same load as the adjacent depth control tire.) When cylinders reach stroke limit lock up the vertical frames with transport pins and klik pins.
7. Use the wing lift hydraulic controls to gradually raise wings.

IMPORTANT: **The rear hinge stiffener cylinder should be set at 25-1/2". This allows the frames to flex only slightly when folding and prevents damage to stiffener, axles and tires during transport.**

CAUTION: **Never raise the wings into transport without using the transport bars or remove holdup bars from depth control cylinders while machine is in transport mode. Machine damage could result.**

B) ROAD TO FIELD CONVERSION

1. Move machine into field and ensure you have sufficient space to fold down wings.

IMPORTANT: **Do not lower shanks when wings are raised. Keep depth cylinder holdup bars locked until wings are down or machine damage may result.**

2. Remove transport pins from wing holdup bars and put in storage location.

3. Use hydraulic control to lower wings slowly. Extend the wing lift cylinders fully keep the hydraulics under pressure until the transport axle cylinder retracts and the frame stiffener cylinder extends.

CAUTION: **Do not bounce wings by sudden stopping and starting during lowering.**

4. Position depth control cylinder holdup bars in disengaged position when wings are fully down.

4.2 General Operation

1. Check tire pressures so they are equal at 50 psi (350 kpa) for 9.5Lx15 tires.

2. Check all fasteners and tighten to specifications where necessary.

3. Drive the implement to a relatively level area in the field.

4. Before lowering shanks into the ground hold tractor hydraulic valve open in the "raise" position for a few seconds fully extending depth control cylinders and allowing all slave cylinders to rephase. Move the hydraulic control lever from the "raise" position to the "lower" position in one motion while slowly driving forward so the shanks enter the ground while in forward motion to prevent seed spouts from plugging with dirt.

5. Work a short distance into the field and stop. Leave shanks in the ground.

6. Check working depth of several shanks across the machine by removing the loose dirt from behind the shank and measuring the height from the top of the unworked ground to the bottom of the ground engaging tool (i.e. sweep, hoe point, etc.). The working depth across the machine should be relatively uniform (all within 1/4" to 1/2"). If the variation in depth is excessive from one side of a frame to the other, adjust the corresponding axle up or down using the adjustable ram lug (see Levelling Instructions - Section 4).

IMPORTANT

A side to side variation on the center frame cannot be corrected by moving the corresponding ram lug. To do so would damage the center axle. The variation can be rectified by adjusting the right hand spindle weldment (see Levelling Instructions - Section 4).

7. If the working depth varies from the front row of shanks to the rear row of shanks adjust the turnbuckles at the forward end of the front gauge wheel connecting links.

IMPORTANT

Adjust equally both turnbuckles on the center front gauge wheel to equally share the load.

NOTE

While the implement is stationary the front row of shanks should be slightly shallower than the rear row of shanks as the frame will rotate forward slightly when being pulled by the tractor with the shanks at working depth. It is best to check the front to back level of the machine by standing to one side while the machine is working in the field.

8. If overall working depth of the machine is too deep or too shallow adjust both master cylinder depth collars equally in or out.

4.3 FIELD ADJUSTMENTS

A) Working Depth Adjustment

Working depth adjustments are made on the two master cylinders located on the center frame.

1. Raise machine enough to allow moving the adjustable depth collars up or down on the master cylinder rods.

IMPORTANT

The adjustable collars on both master cylinders must be adjusted equally to prevent damage to the center axle.

2. Turn the first depth collar in or out to the desired setting counting the number of turns. Turn the other depth collar exactly the same number of turns as the first and in the same direction. (Figure 3-1)

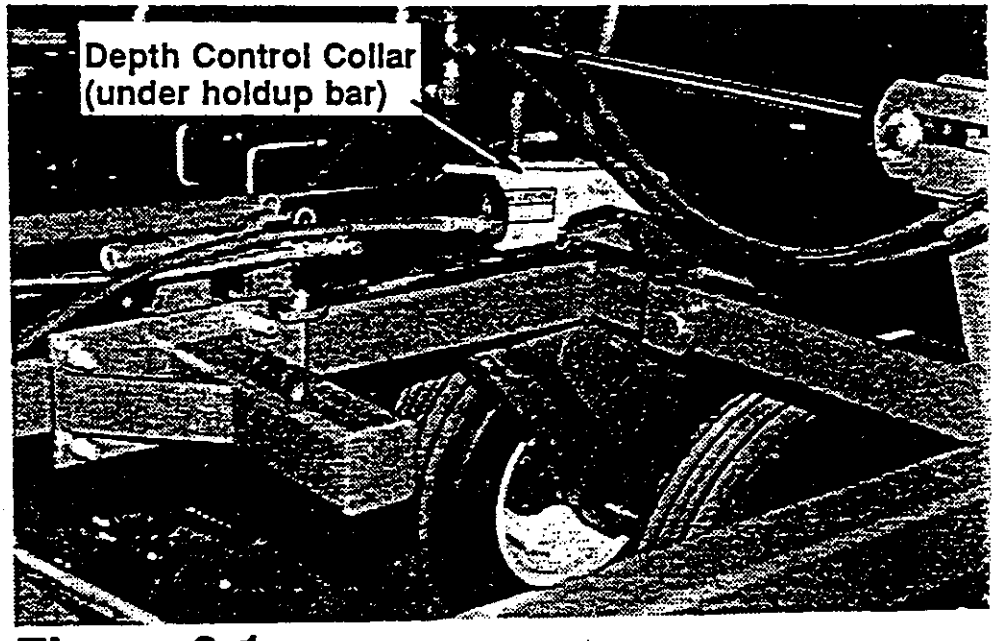


Figure 3-1:

B) Axle Spindle Adjustment

The adjustable spindle on the center double throw axle should be adjusted when the right side of the center frame is working higher or lower than the left side.

1. Stop machine during operation. Do not raise shanks out of the ground. Relieve all hydraulic pressure.
2. Loosen 1" nut securing adjustment plate to axle leg, (Figure 3-2).
3. Remove 3/4 x 5-1/2" capscrew and rotate axle spindle which raises or lowers wheel.
4. Install 3/4 x 5-1/2" capscrew in new hole alignment and torque nut to 270 ft-lbs (365 N-m). Retighten 1" nut to axle leg.

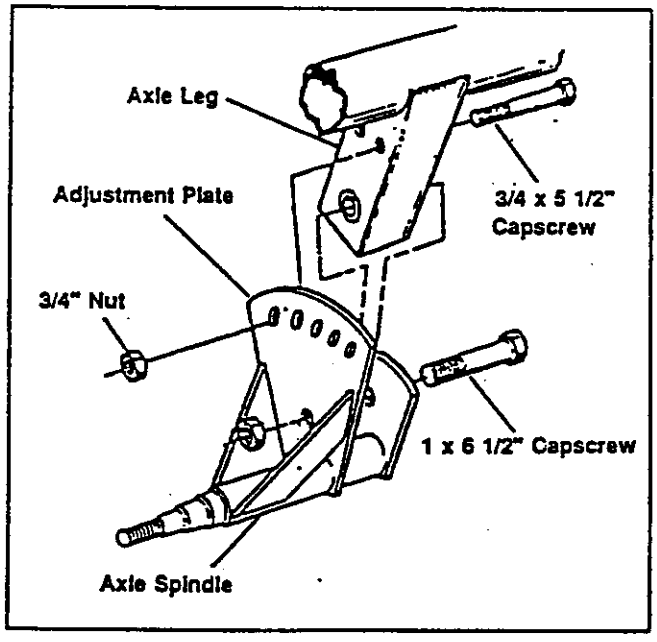


Figure 3-2: Axle Spindle Adjustment

C) Wing Axle Adjustment

One or more of the main axles on the center wing or outer wing frames may be gauging a different depth than the center frame axle (measure from frame to spindle with machine at working depth). The cylinder ram lug for that axle should be adjusted accordingly. Refer to "Levelling Instructions" Section 4 for the proper method of adjustment.

D) Front Gauge Wheel Adjustment

If the center frame tilts to the front or to the back when working under load in the field adjust the turnbuckles equally on both long offset connecting links to raise or lower the front center gauge wheel. Refer to "Levelling Instructions" Section 4 for the proper method of adjustment.
If the outer wing frames tilt to the front or to the back when working under load in the field, adjust the turnbuckle on the connecting link to raise or lower the front outer gauge wheel. Refer to "Levelling Instruction" in this section for proper method of adjustment.

E) Shank Assembly Adjustment

The initial trip out force of the shank assembly can be increased for firm soils or decreased for mellow soils.

IMPORTANT

Compressing the springs an additional 1/2" (12mm) will reduce the maximum trip height of the ground engaging tool by almost 2" (50mm). A reduction in trip height could cause damage to the shank assembly in fields with large obstructions (ie. rocks) in the soil.

1. Increase initial shank trip-out force by further compressing springs. Tighten both 3/4" hex nuts on spring U-bolt.

2. Loosen nuts to reduce initial trip force.

NOTE

Compressing springs an additional 1/4" (6mm) increases shank trip-out force 20%. Shank assemblies from the factory have a spring compression of 1-3/16" to 1-1/4" (30mm).

F) Packer Assembly Alignment

When seeding with rear attached packer assemblies check that the individual wheels are packing directly over the furrow created by the corresponding shank.

1. If the entire packer gang needs to be realigned with the shanks loosen the U-bolts clamping the packer bearing standards to the cross tube and slide the gang right or left.

2. If only a few of the packer wheels misalign with their corresponding shanks then the shank assemblies will have to be loosened and moved laterally on their mounting frame member.

G) Packing Force Adjustment

The height of the packer wheels can be adjusted to ensure they are packing to the proper depth relative to the ground engaging tools. The spring force can also be adjusted to apply more or less packing force.

IMPORTANT

If the packer wheels are adjusted too deep and/or the spring force is adjusted too high the packer wheels may have a tendency to hold-up the rear of the machine and not allow the rear shanks to work at their proper depth.

1. Raise and lower the packer wheels relative to the ground engaging tools by using the series of holes in the frame mounting brackets (Figure on page 119 items 1 and 2). The packer wheel height should be adjusted so when the shanks are working at their proper depth the packers are floating on the soil (ie. the frame mounting brackets are partly tripped).

2. Increase or decrease the packing force by adjusting the 3/4" hex nuts on the spring bolts of the frame mounting bracket.

H) Transport Axle Adjustment

1. Raise the machine fully and engage the depth cylinder hold-out bars. Relax the depth control hydraulics and allow the weight of the machine to rest on the cylinder hold-out bars.

2. Fully extend the transport axle cylinder with the wing lift circuit by raising the outside wings slightly.

3. Adjust the transport axle adjustment bar to raise or lower the transport wheel until it is carrying approximately the same weight as the adjacent wheel.

4. Fold the wings for transport and check that the transport tire is still sharing the load with the adjacent tire. Readjust bar if necessary.

NOTE

If the machine is left in transport position for a long period of time the transport cylinder may have to be pressurized again to ensure it is still fully extended and carrying part of the machine weight.

I) LEVELLING INSTRUCTIONS

NOTE

Lubricate axle pivot brackets and linkages before levelling. Work machine up and down fully to ensure axles turn freely. This ensures the weight of the unit is transferred completely to the depth control cylinders and is not being held up by friction in the axle pivots.

LEFT and/or RIGHT; Left and right is determined by standing at the rear of the implement looking in the direction of travel.

LEVELLING BLOCKS: Levelling block, Part N0098559, is available individually or in a kit of 4 with a Levelling Bar; Part N0098560.

IMPORTANT

Use levelling blocks on depth cylinders with collar-type depth stops.

LEVELLING BARS: Part N0098555 is available individually or is included in the Levelling Kit/Package N0098560. Should you require immediate levelling devices, you may design your own using a straight piece of material; wood, steel etc. that will lay across two frame tubes and extend beyond by about 8 in. (60 in. overall). It should have a flat surface so it will stay on the frame where you place it. Measurements can be taken with a measuring tape or other convenient tool for the operator's use.

HINTS: Be sure the levelling bar (or straight edge) is laying across the frame of the axle that you are levelling. A common error is to lay the edge across the frame next to the axle being levelled, or across two adjoining frames.

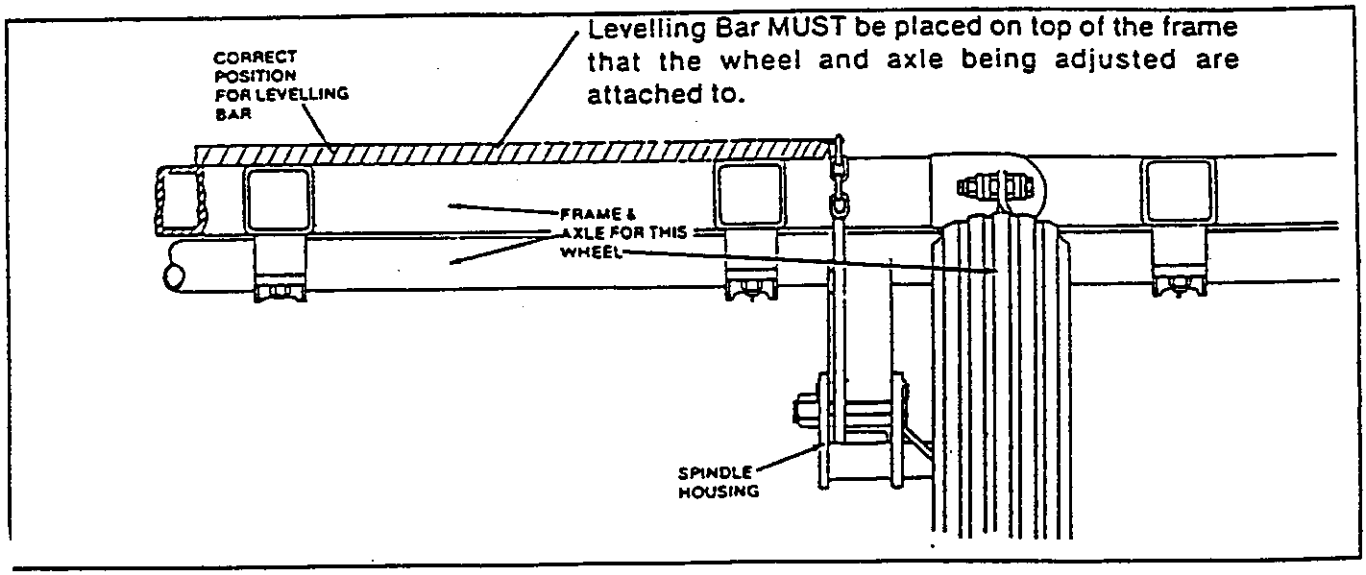

CORRECT POSITION FOR LEVELLING BAR
Levelling Bar MUST be placed on top of the frame that the wheel and axle being adjusted are attached to.
FRAME & AXLE FOR THIS WHEEL
SPINDLE HOUSING

Figure 4-1:

J) Shallow Work or Deep Ripping With Chisel Points Adjustment

The axle adjustment measurements given on the following pages are for normal working conditions. Should you wish to work shallower or deeper, this may be accomplished by moving the depth cylinder adjustable ram lugs, Figure 4-4.

- Move ram lug toward rear for shallower work.
- Move ram lug toward front for deeper work. 1/2 in. movement on the ram lug will yield approximately 1 to 1 1/2 in. on the working depth.

IMPORTANT

Models with multiple depth cylinders: it is VERY CRITICAL that all adjustable ram lugs be moved an equal amount. Failure to do this will result in improper function of the equipment and possible damage.

Preparation For Levelling

1. Grease all fittings on:
   a) Frame hinge points.
   b) Axle pivot brackets.
   c) Axle bearing blocks, both top and bottom halves.
   d) Front linkage pivots.
2. Check tire inflation;
   50 psi (350 kpa).

Levelling Frames

Use the following illustratio, Figure 4-2 for axle and frame references made throughout the instruction

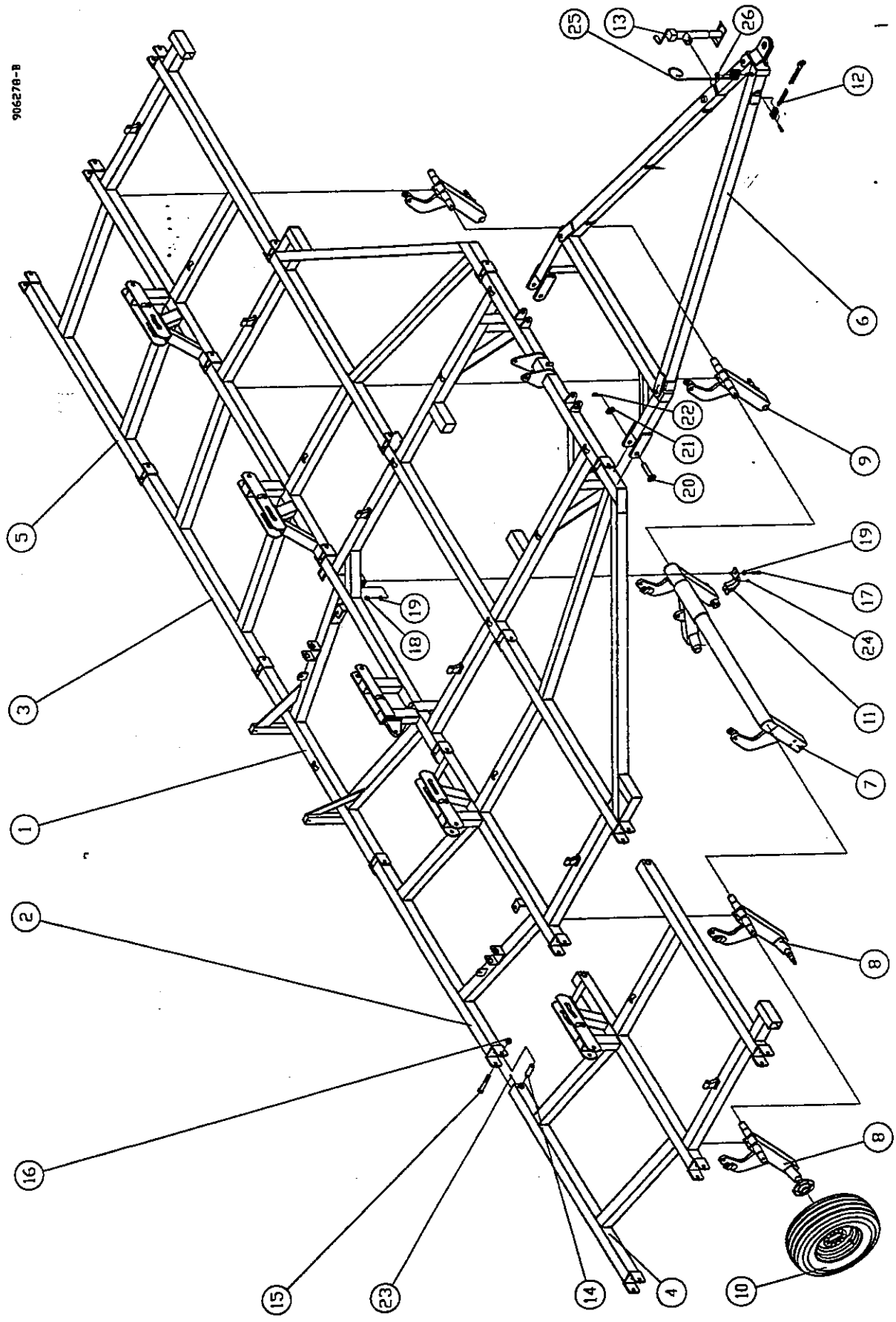

906278-B
1. Center Frame
2. R.H. Center Wing Frame
3. L.H. Center Wing Frame
4. R.H. Outer Wing Frame
5. L.H. Outer Wing Frame
6. Swing Hitch
7. Center Axle
8. R.H. Single Axle
9. L.H. Single Axle
10. Wheel Assembly
11. Axle Bearing Cap
12. Safety Chain
13. Hitch Jack
14. Hinge Bushing
15. Capscrew 1" x 6 1/2"
16. Locknut 1"
17. Capscrew 3/4" x 2 1/2"
18. Locknut 3/4"
19. Flatwasher 3/4"
20. Pin 1 1/4" x 6 7/16"
21. Flatwasher 1 1/4"
22. Hairpin 3/16" x 3 9/16"
23. Grease Fitting 1/8"
24. Grease Fitting 1/8" 90deg.
25. Hose Holder
26. Flangenut 3/4"

Figure 4-2:

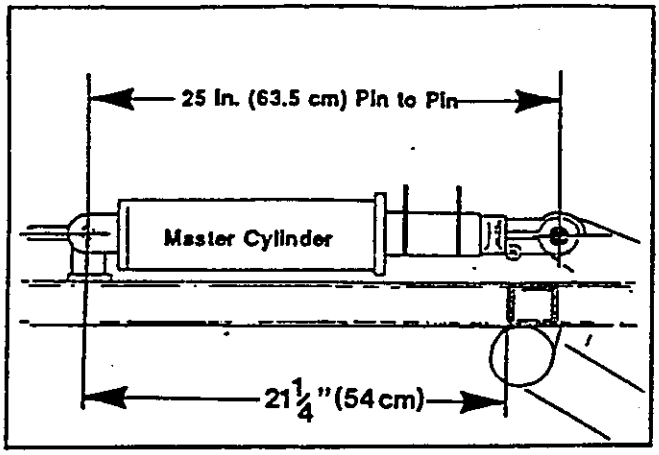


Figure 4-3:

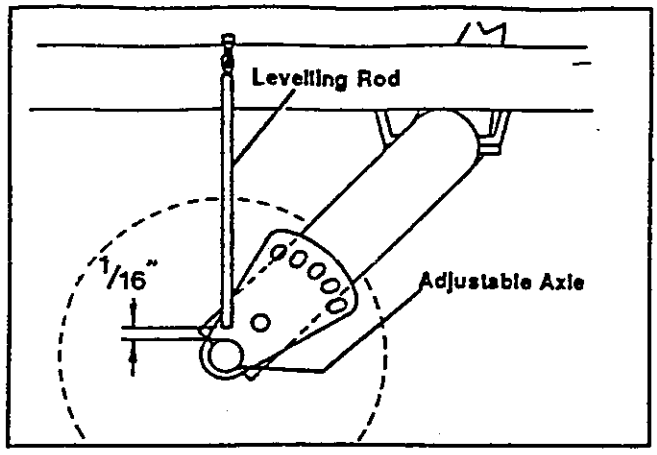


Figure 4-6:

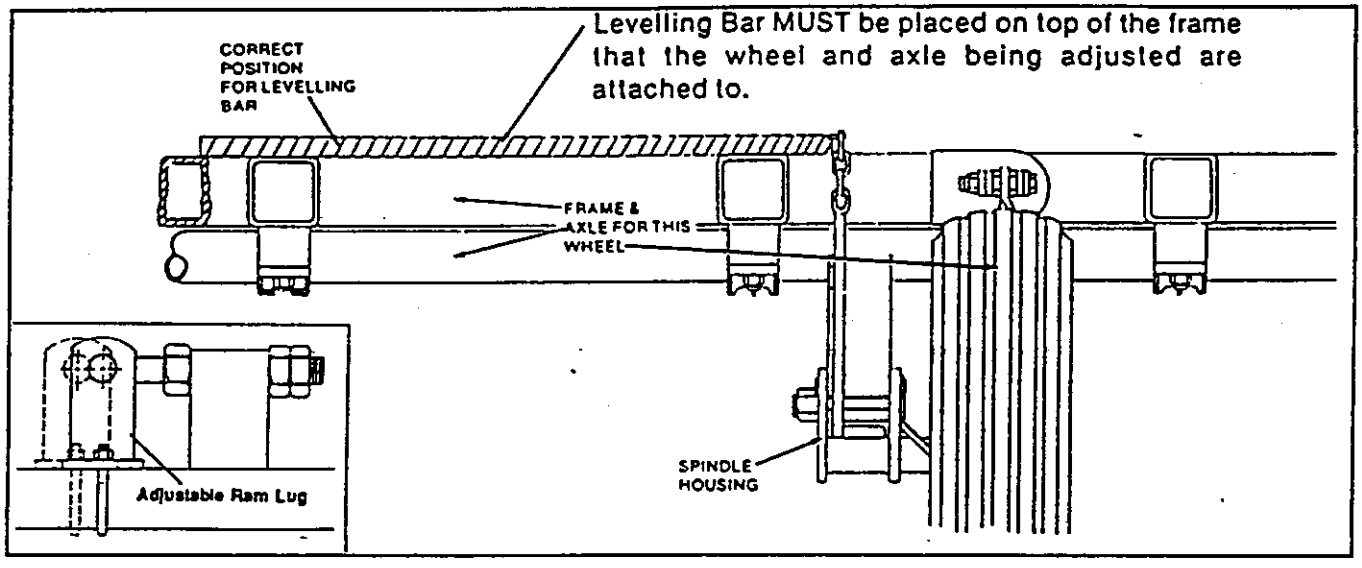

Levelling Bar MUST be placed on top of the frame that the wheel and axle being adjusted are attached to.
CORRECT POSITION FOR LEVELLING BAR
FRAME & AXLE FOR THIS WHEEL
Adjustable Ram Lug
SPINDLE HOUSING

Figure 4-4:

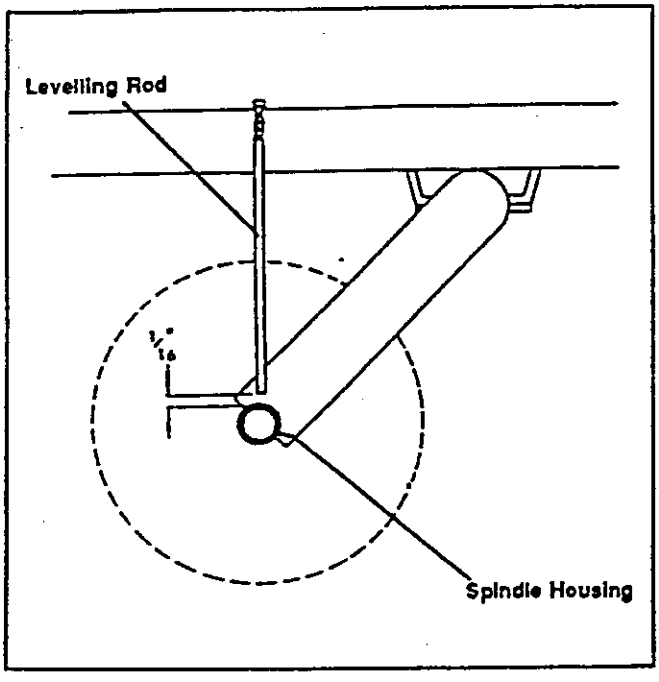


Figure 4-5:

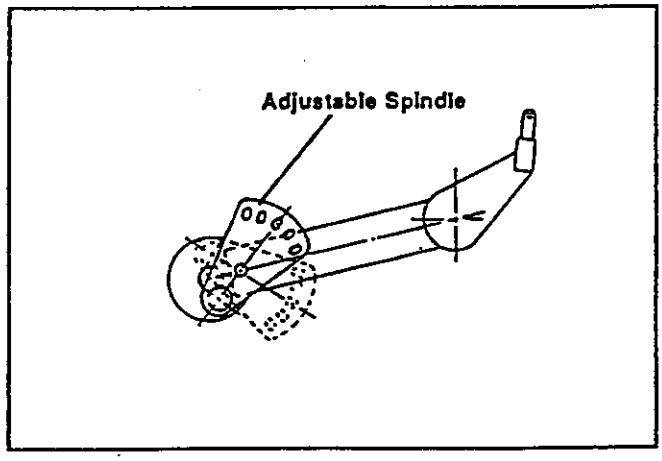


Figure 4-7:

IMPORTANT

- Before levelling machine, adjust equally the right and left adjustable ram lugs on the center frame to 21 1/4" (540mm), Figure 4-3.
- Cycle depth circuit at least five times until air is out of system. Hold the tractor valve open for a few seconds when cylinders are fully extended to ensure all slave cylinders are properly synchronized.
- When using levelling kit, ensure levelling rod is placed only on frame being levelled. DO NOT SET ACROSS HINGE JOINT, FIGURE 4-4.

1. Install levelling blocks on the two master cylinders on the center axle (7). Adjust depth collars to obtain 25" (63.5 cm) pin to pin on both cylinders, Figure 4-3.
2. Use tractor hydraulics and lower machine to the adjusted stops.
3. Place levelling rod (yellow side up) across center frame (1). Chain/rod should be positioned directly over left-hand spindle. Measure down to top of spindle inside spindle housing. Should measurement from top of spindle to top of frame not be 19 1/2" (49.5cm) (1/16" (1.5mm) clearance), Figure 4-5, loosen the right and left adjustable ram lugs on the center frame and move them both forward or backward until the chain/rod just touches the top of the spindle inside the housing. Retighten adjustable ram lugs, Figure 4-4.
4. Position levelling rod over adjustable spindle on right side of center frame (1). There should be 1/8" (3mm) clearance between chain/rod and top of adjustable spindle, Figure 4-6. Should clearance not be 1/8" (3mm) loosen nut on 1x6" bolt and remove ¾ x 5-1/2" bolt and adjust spindle up or down, Figure 4-7.

IMPORTANT

Damage to the center axle may occur by adjusting the right spindle to match the left spindle on the center axle by moving the right adjustable ram lug or by adjusting the right cylinder depth collar.

5. Place levelling bar (yellow side up) on right center wing frame (2). Chain/rod should be positioned directly above axle spindle. Should measurement from top of spindle to top of frame not be 19-1/2" (1/16" clearance), loosen adjustable ram lug and move lug forward or backward until the chain/rod just touches the top of the spindle, Figure 4-8. Retighten adjustable ram lug hardware.
6. Repeat step 5 on the other three wing frames (3, 4, 5).
7. Front to back levelling is achieved by adjusting the turnbuckles on the connecting links to the front gauge wheels. Start by placing the levelling bar over the dual castor axle at the front of the center frame. Measure from the top of the dual spindle to the top of the frame. This measurement should be 1/2" to 1" more than the measurement to the rear spindles. Should this measurement not be 20" to 20-1/2", adjust the turnbuckles equally on both long offset connecting links, Figure 4-9.

8. Place the levelling bar over the single castor axle on the right outer wing. Should the measurement from the top of the spindle to the top of the frame not be 20" to 20-1/2" adjust the turnbuckle on the connecting link, Figure 4-10.

9. Repeat step 8 on the left outer gauge wheel.

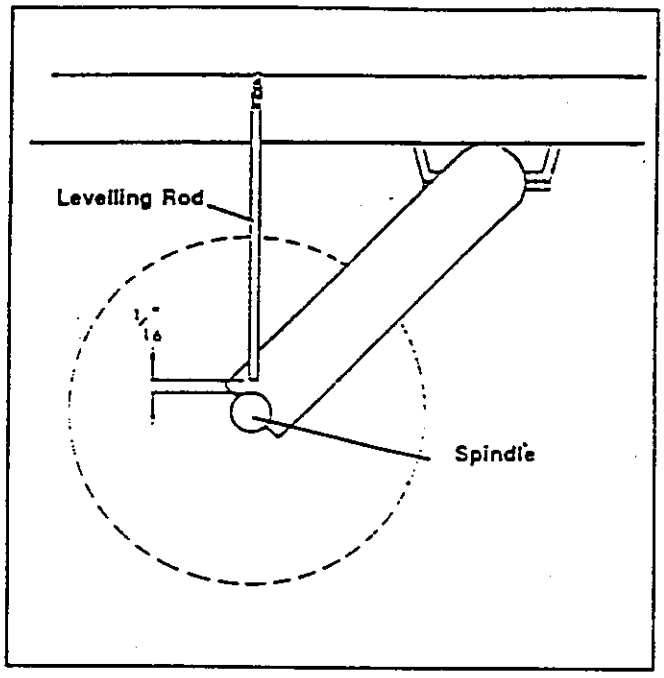


Figure 4-8:

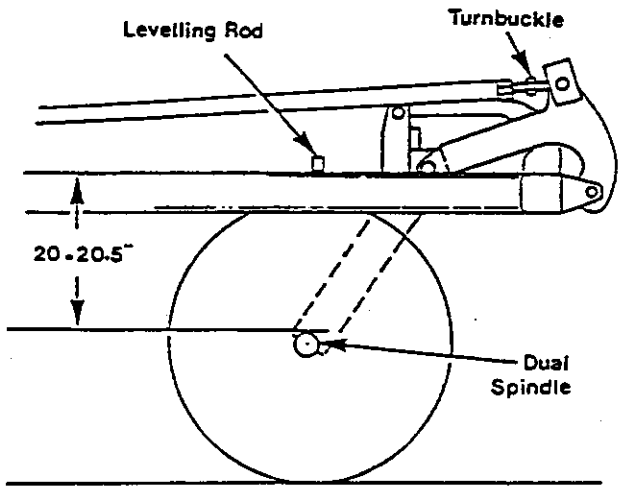


Figure 4-9:

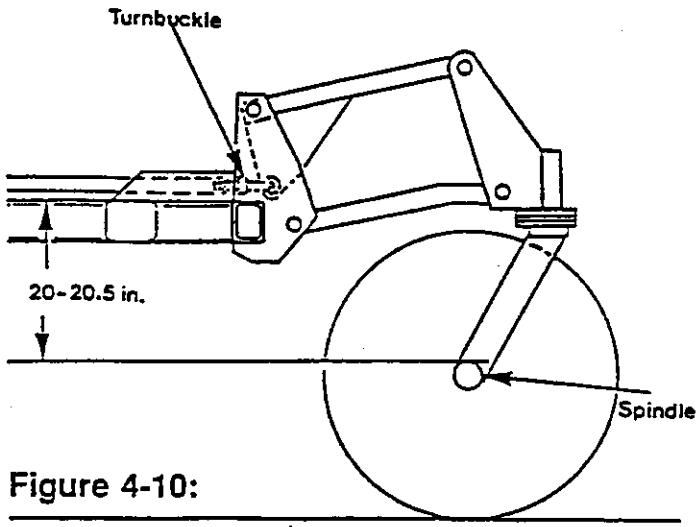


Figure 4-10:

5. LUBRICATION and MAINTENANCE

A) TIRES

Maintain tires at recommended pressure.

B) BOLTS

Tighten frame bolts and nuts daily and before transporting. Tighten hub nuts regularly or whenever loose.

C) WHEEL HUBS

Check wheel bearings for end play before starting work and every 50 hours thereafter. Tighten spindle nut to 20 to 40 lbf ft (25 to 54 N.m), back off and tighten finger tight. Install cotterpins and dust cap.

D) LUBRICATION

Grease all fittings before operating a new unit.

1. Grease hinge bushings, axle pivots, caster pivots, gauge wheel linkages and turnbuckles every 50 hours.

2. Grease wheel hubs every 100 hours

SUMMARY LUBRICATION AND MAINTENANCE CHART

	10hr	50hr	100hr	Annually
Grease castor pivot		x		
Grease hinge bushing		x		
Grease gauge wheel pivots		x		
Grease axle pivots		x		
Grease wheel hubs			x	
Repack wheel hubs				x

PROBLEM	PROBABLE CAUSE	REMEDY
Front sweeps or hoe points are working deeper than the rear.	-Frame is tilting forward too far in the field under load	-Raise front of frame by lowering front gauge wheels -Move rear of hitch tongue to lower mounting hole
	-Rear attachments (ie. packers) are holding up the rear of the machine not allowing the rear shanks to work as deep as the front	-Reduce down pressure on rear attachments by loosening springs or adjusting attachment to a higher setting.
Ground tools not penetrating or not staying in the ground	Frames not level side-to-side and/or front-to-back	Re-level machine as per instructions Section 4.
	Ground too hard	Add frame weights close to rear depth wheels
	Ground tools worn	Replace worn out ground tools.
Ground tools not working deep enough in tractor tire tracks	Center frame is adjusted too high	Move both right and left ram lug on center frame ahead the same amount until shanks on center frame are working deep enough.
	Tire tracks are too hard causing shank assemblies to trip back too far	Increase spring pressure on shank assemblies working in tractor tire tracks (Caution: Increasing spring pressure reduces shank trip height)
Shanks will not remain in ground in hilly conditions	Wing fold cylinders not fully extended	Ensure wing fold cylinders are fully extended to allow frames to flex adequately.

Slave depth control cylinders creeping	Cylinders out of phase	Resynchronize depth control by fully extending cylinders and holding tractor valve open for a few seconds <u>then immediately</u> retract cylinder to depth stops.
	One or more piston seal(s) is damaged	Observe cylinder operation. If the outer wing cylinder is creeping, service that cylinder only. If both center wing and outer wing cylinders are creeping the same amount, service the center wing slave cylinder first.

7. SPECIFICATIONS

	22.5(6.9m)	32.5(10m)	37.5(11.5m)	47.5(14.6m)	52.5(16.1m)
Frame Widths					
- Center	94.5"(2.4m) ==>				
- Center wing	90"(2.3m) =>				
- Outer wing	---	60"(1.5m)	90"(2.3m) = = = = = = = = = ==>		
- Ext. wing	---	---	---	60"(1.5M)	90"(2.3)
# of Wheels (9.5LX15X8ply)	7	11	13	16	18
No. of Shanks					
- 7.5" Spacing	36	52	60	76	84
- 9" Spacing	30	44	50	62	70
- 11.25" Spacing	24	34	40	50	56
- 30" Spacing	9	13	15	19	21
Winglift Configuration	0-1	2-1	2-1	2-3	2-3
Transport Width					
- Tread	15.4'(4.7m) ==>				
- Overall	22.2'(6.8m) ==>				
Transport Height	14.5'(4.4m) =>				
Underframe Clearance	28 in. (710mm)				
Depth Range	0 - 8 in. (0 - 200 mm)				
Weights-lbs.(kg)					
-Base mach.	4250(1920)	6350(2885)	7330(3330)	9385(4265)	10400(4725)
-Packers @ 9"	1155(525)	1765(802)	1925(875)	2535(1150)	2695(1225)
-Hoe shank assy	65 lbs each (30 kg each)				
-Medium duty C-shank	60 lbs each (27 kg each)				
-Heavy duty C-shank	70 lbs each (32 kg each)				

Heavy - Duty C - Shank

- shank size	1-1/4" x 2" (round edge)
- sweep stem angle	50 degrees
- sweep width	14 inches
- initial trip force	350 lbs.
- maximum trip height	10 inches
- weight w/o sweep	40 kg (75 lbs)

Medium - Duty C - Shank

- shank size	7/8" x 2" (round edge)
- sweep stem angle	50 degrees
- sweep width	12 inches
- initial trip force	275 lbs.
- maximum trip height	10 inches
- weight w/o sweep	27 kg (60 lbs)

Narrow Hoe Shank

- shank size	1 1/2 x 2 1/2 HSS Tube(tapered)
- hoe point	narrow eagle beak
- initial trip force	275 lbs.
- maximum trip height	9 1/2 inches
- weight	30 kg (65 lb)

18" Packer Wheel Attachments

- wheel type	Steel Rounded Vee
- wheel diameter	460 mm (18 in.)
- Packing force	40 to 80 lb/wheel
- weight @ 9" spacing	175 kg (385 lbs)

HARDWARE TORQUE SPECIFICATIONS

CHECKING BOLT TORQUE

The tables shown below give correct torque values for various bolts and capscrews. Tighten all bolts to the torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt torque chart as a guide. Replace hardware with the same strength bolt.

ENGLISH TORQUE SPECIFICATIONS

Bolt Diameter "A"	Bolt Torque * SAE 2 N.m	(lb-ft)	SAE 5 N.m	(lb-ft)	SAE 8 N.m	(lb-ft)
1/4"	8	(6)	12	(9)	17	(12)
5/16"	13	(10)	25	(19)	36	(27)
3/8"	27	(20)	45	(33)	63	(45)
7/16"	41	(30)	72	(53)	100	(75)
1/2"	61	(45)	110	(80)	155	(115)
9/16"	95	(70)	155	(115)	220	(165)
5/8"	128	(95)	215	(160)	305	(220)
3/4"	225	(165)	390	(290)	540	(400)
7/8"	230	(170)	570	(420)	880	(650)
1"	.345	(225)	850	(630)	1320	(970)

TIGHTENING FLARE TYPE TUBE FITTINGS *

1. Check flare and flare seat for defects that might cause leakage
2. Align tube with fitting before tightening.
3. Lubricate connection and hand tighten swivel nut until snug.
4. To prevent twisting the tube(s), use two wrenches. Place one wrench on the connector body and with the second tighten the swivel nut to the torque shown.

* The torque values shown are based on lubricated connections as in reassembly.

Tube size OD (in.)	Nut size (in.)	Torque Value* N.m	(lb-ft)
3/16	7/16	8	(6)
1/4	9/16	12	(9)
5/16	5/8	16	(12)
3/8	11/16	24	(18)
1/2	7/8	46	(34)
5/8	1	62	(46)
3/4	1-1/4	102	(75)
7/8	1-3/8	122	(90)

8. CONVERSION TABLE

AREA

Acre x 0.4047 = Hectare	Hectare x 2.471 = Acre
Acre x 43560 = Square feet	Hectare x 10000 = Square Meter

LENGTH

Inch x 2.54 = Centimetre	Centimetre x 0.394 = Inches
Feet x 0.305 = Meter	Meter x 3.28 = Feet
Mile x 1.609 = Kilometre	Kilometre x. 0.6214 = Mile
Mile x 5280 = Feet	Kilometre x 1000 = Meter

SPEED

MPH x 1.609 = KMPH	KMPH x 0.6214 = MPH

VOLUME

Cubic Feet x 0.028 = Cubic Meters	Cubic Meters x 35.3 = Cubic Feet
Cubic Feet X 0.8 = Bushels	

RATES

Pounds/acre x 1.12 = kg/hectare	Kg/hectare x 0.89 = Pounds/acre
Kg/acre x 2.205 = Pounds/acre	Pounds/acre x 0.454 = kg/acre

DENSITY

Pounds/Cubic Foot x 16.02 = Kilograms/Cubic Meter
Kilograms/Cubic Meter x 0.0624 = Pounds/Cubic Foot.

PRESSURE

Pounds/Square Inch x 6.895 = Kilopascal (KPA)
Kilopascal x 0.145 = Pounds/Square Inch

TEMPERATURE

(Degrees Fahrenheit - 32) x .556 = Degrees Celsius
Degrees Celsius x 1.8 + 32 = Degrees Fahrenheit.

9. PARTS LIST

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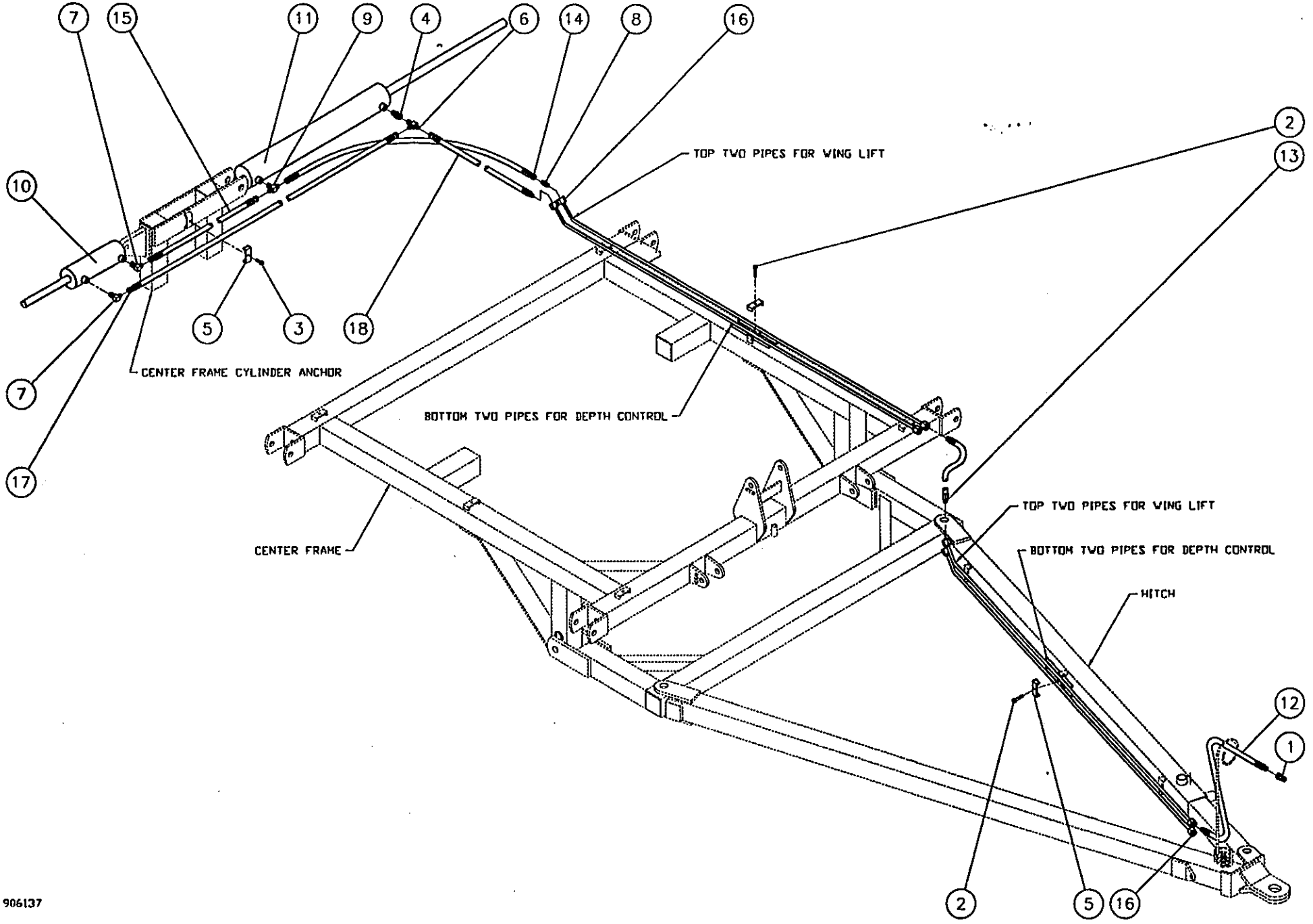
Wing lift Hydraulics for 22-1/2'

1.	N0017641	Nipple-male tip 1/2"
2.	N0029064	Screw 3/8" x 2" serrated flange
3.	N0029802	Screw 3/8" x 1-1/4" serrated flange
4.	N0081860	Flow restrictor 1/2" w/.062" orifice
5.	N0082051	Pipe clip
6.	196036	Tee-male run 1/2"mpt - 1/2"mjic
7.	196058	Elbow 90 deg 1/2"mpt - 1/2"mjic
8.	196059	Adapter 1/2"mjic
9.	196083	Tee 1/2"mpt - 1/2"mjic
10.	196105	Hyd. cylinder, 3-1/2" x 8"
	324121	Seal kit
11.	A0040297	Hyd. cylinder, 3-1/2" x 30"
	A0053800	Seal kit
12.	A0045178	Hyd. hose 3/8" x 90-1/2"(2300mm) 1/2"mjic - 1/2"mpt
13.	A0045278	Hyd. hose 3/8" x 33-1/2"(850mm) 1/2"mjic ends
14.	905866	Hyd. hose 3/8" x 59-7/8"(1520mm) 1/2"fjic ends
15.	906235	Hyd. hose 3/8" x 33-7/8"(860mm) 1/2"fjic ends
16.	906260	Hyd. pipe assembly 1/2" x 96"(2440mm)
17.	906261	Hyd. hose 3/8" x 74"(1880mm) 1/2"fjic ends
18.	906262	hyd. hose 3/8" x 36"(915mm) 1/2"mjic - 1/2"fjic

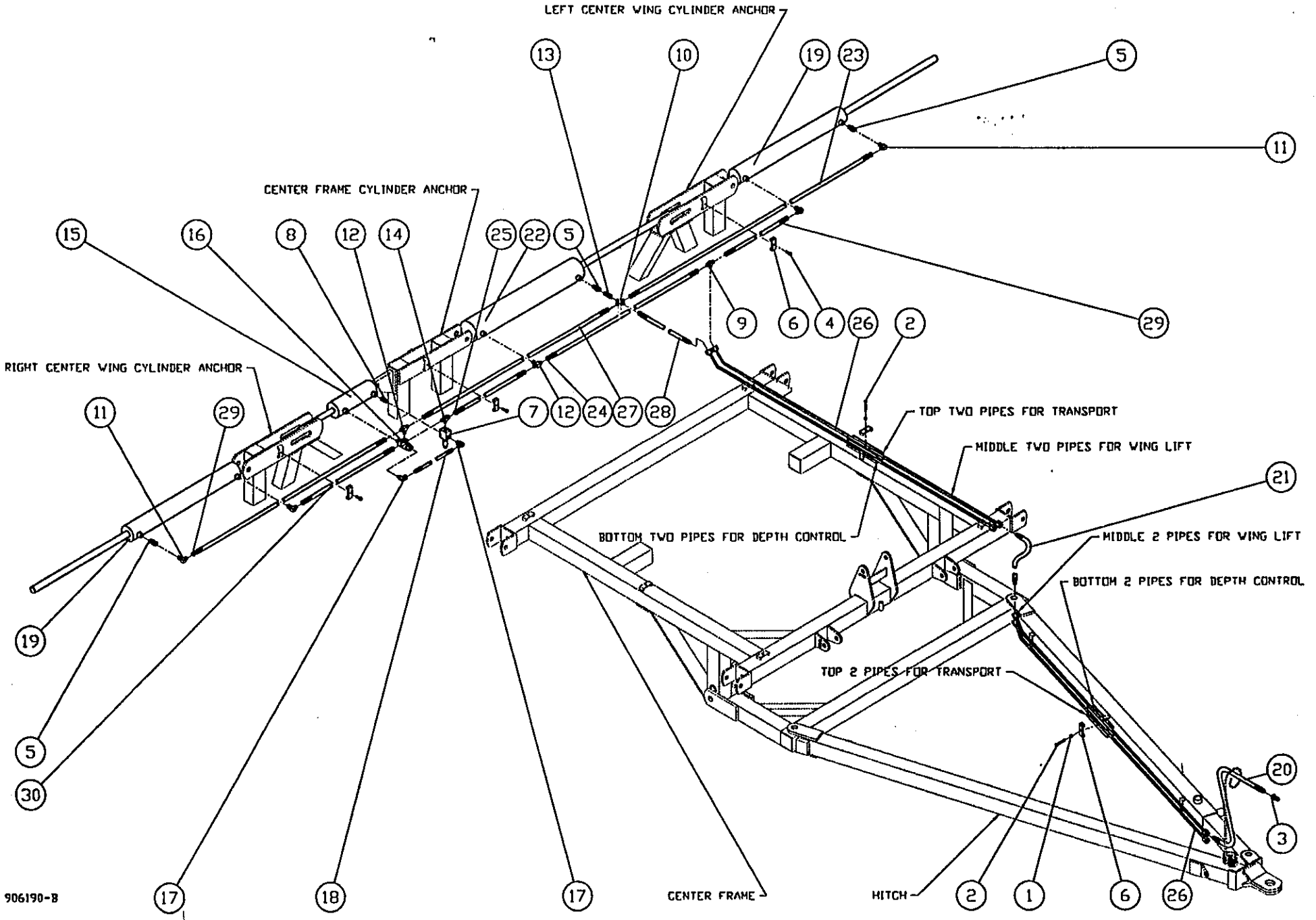
WING LIFT HYDRAULICS FOR 22.5'



Wing lift Hydraulics for 32-1/2' and 37-1/2'

1.	N0012011	Lockwasher 3/8"	
2.	N0012532	Capscrew 3/8" x 2-3/4"	
3.	N0017641	Nipple-male tip 1/2"	
4.	N0029802	Screw 3/8" x 1-1/4" serrated flange	
5.	N0081860	Flow restrictor 1/2 w/.062" orifice	
6.	N0082051	Pipe clip	
7.	N0083222	Valve priority	
8.	N0084409	Nipple-red. 1/2"mpt x 3/8"mpt	
9.	196037	Tee 1/2"mjic	
10.	196053	Cross-male 1/2"jic	
11.	196058	Elbow 90 deg 1/2"mpt x 1/2"mjic	
12.	196083	Tee 1/2"mpt x 1/2"mjic	
13.	196085	Adapter-swivel 1/2"fjic - 1/2"mpt	
14.	196086	Tee 3/8"mpt - 1/2"mjic	
15.	196105	Hyd. cylinder 3-1/2" x 8"	
	324114	Stroke control	
	324121	Seal kit	
16.	208001	PC50 pilot operated check valve	
17.	401149	Elbow swivel 90 deg 1/4"mpt x 3/8"fpt	
18.	903624	Hyd. hose 3/8" x 1 ft. 3/8"mpt ends	(305mm)
19.	A0040297	Hyd. cylinder 3-1/2" x 30"	
	A0053800	Seal kit	
20.	A0045178	Hyd. hose 3/8" x 90-1/2" 1/2"mjic-1/2"mpt	(2300mm)
21.	A0045278	Hyd. hose 3/8" x 33-1/2" 1/2"mjic - ends	(850mm)
22.	A0055397	Hyd. cylinder 5" x 30"	
23.	905863	Hyd. hose 3/8" x 90-1/8" 1/2"fjic ends	(2290mm)
24.	905866	Hyd. hose 3/8" x 58-7/8" 1/2"fjic ends	(1520mm)
25.	906235	Hyd. hose 3/8" x 33-7/8" 1/2"fjic ends	(860mm)
26.	906260	Hyd. pipe assembly 1/2" x 96"	(2440mm)
27.	906261	hyd. hose 3/8" x 74" 1/2"fjic ends	(1880mm)
28.	906262	Hyd. hose 3/8" x 36" 1/2"mjic - 1/2"fjic	(915mm)
29.	906264	Hyd. hose 3/8" x 66" 1/2"fjic ends	(1675mm)
30.	906265	hyd. hose 3/8" x 43" 1/2"fjic ends	(1090mm)

WING LIFT HYDRAULICS FOR 32.5' AND 37.5'



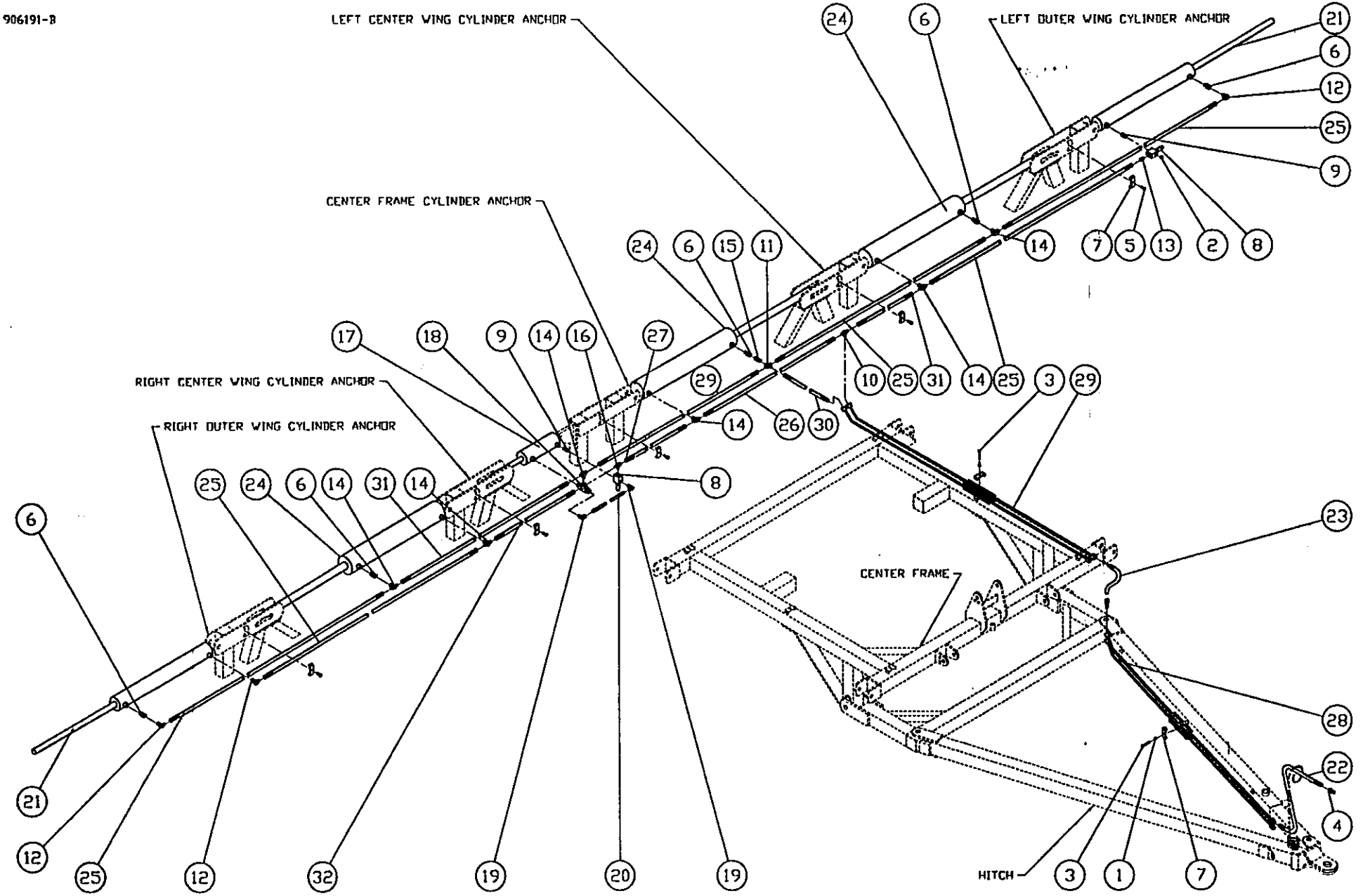
906190-B

Wing lift Hydraulics for 47-1/2' and 52-1/2'

1.	N0012011	Lockwasher 3/8"	
2.	N0012179	Plug-inside hex 3/8mpt	
3.	N0012532	Capscrew 3/8" x 2-3/4"	
4.	N0017641	Nipple-male tip 1/2"	
5.	N0029802	Screw 3/8" x 1-1/4" serrated flange	
6.	N0081860	Flow restrictor 1/2 w/.062" orifice	
7.	N0082051	Pipe clip	
8.	N0083222	Valve priority	
9.	N0084409	Nipple-red. 1/2"mpt x 3/8"mpt	
10.	196037	Tee 1/2"mjic	
11.	196053	Cross-male 1/2"jic	
12.	196058	Elbow 90 deg 1/2"mpt x 1/2"mjic	
13.	196065	Adapter 3/8"mpt - 1/2"mjic	
14.	196083	Tee 1/2"mpt x 1/2"mjic	
15.	196085	Adapter-swivel 1/2"fjic - 1/2"mpt	
16.	196086	Tee 3/8"mpt - 1/2"mjic	
17.	196105	Hyd. cylinder 3-1/2" x 8"	
	324114	Stroke control	
	324121	Seal kit	
18.	208001	PC50 pilot operated check valve	
19.	401149	Elbow swivel 90 deg 1/4"mpt x 3/8"fpt	
20.	903624	Hyd. hose 3/8" x 1 ft. 3/8"mpt ends	(305mm)
21.	A0040297	Hyd. cylinder 3-1/2" x 30"	
	A0053800	Seal kit	
22.	A0045178	Hyd. hose 3/8" x 90-1/2" 1/2"mjic-1/2"mpt	(2300mm)
23.	A0045278	Hyd. hose 3/8" x 33-1/2" 1/2"mjic - ends	(850mm)
24.	A0055397	Hyd. cylinder 5" x 30"	
25.	905863	Hyd. hose 3/8" x 90-1/8" 1/2"fjic ends	(2290mm)
26.	905866	Hyd. hose 3/8" x 58-7/8" 1/2"fjic ends	(1520mm)
27.	906235	Hyd. hose 3/8" x 33-7/8" 1/2"fjic ends	(860mm)
28.	906260	Hyd. pipe assembly 1/2" x 96"	(2440mm)
29.	906261	hyd. hose 3/8" x 74" 1/2"fjic ends	(1880mm)
30.	906262	Hyd. hose 3/8" x 36" 1/2"mjic - 1/2"fjic	(915mm)
31.	906264	Hyd. hose 3/8" x 66" 1/2"fjic ends	(1675mm)
32.	906265	hyd. hose 3/8" x 43" 1/2"fjic ends	(1090mm)

WING LIFT HYDRAULICS FOR 47.5' AND 52.5'

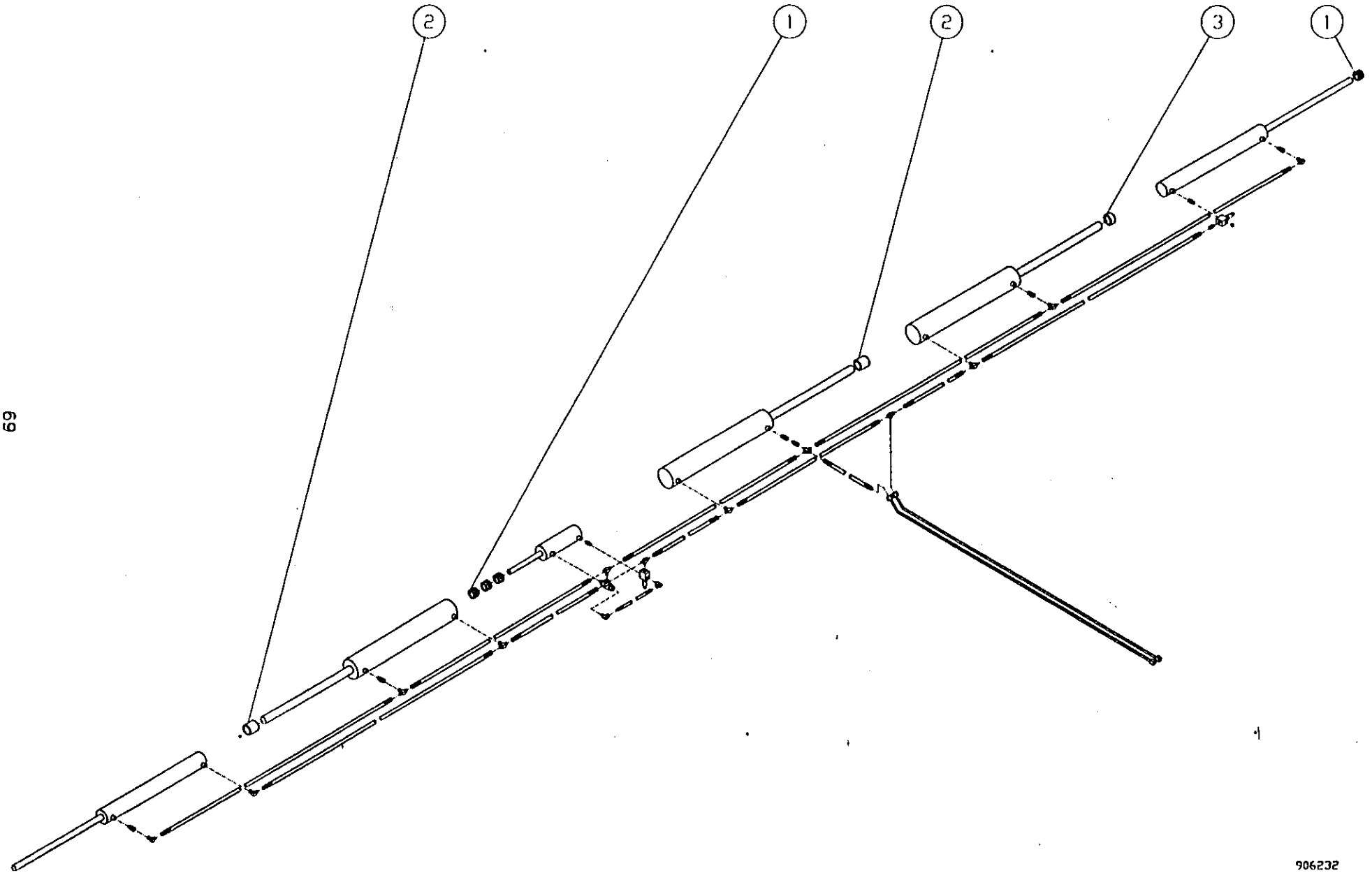
906191-B



52-1/2' WING LIFT STROKE CONTROL COLLAR LOCATIONS

1. N0082062 STROKE CONTROL 1-1/2" WIDE X 1-1/2" SHAFT
2. 906321 COLLAR, STROKE CONTROL, 2"ID X 3"
3. 906322 COLLAR, STROKE CONTROL, 2"ID X 1-1/2"

52-1/2' WING LIFT STROKE CONTROL COLLAR LOCATIONS

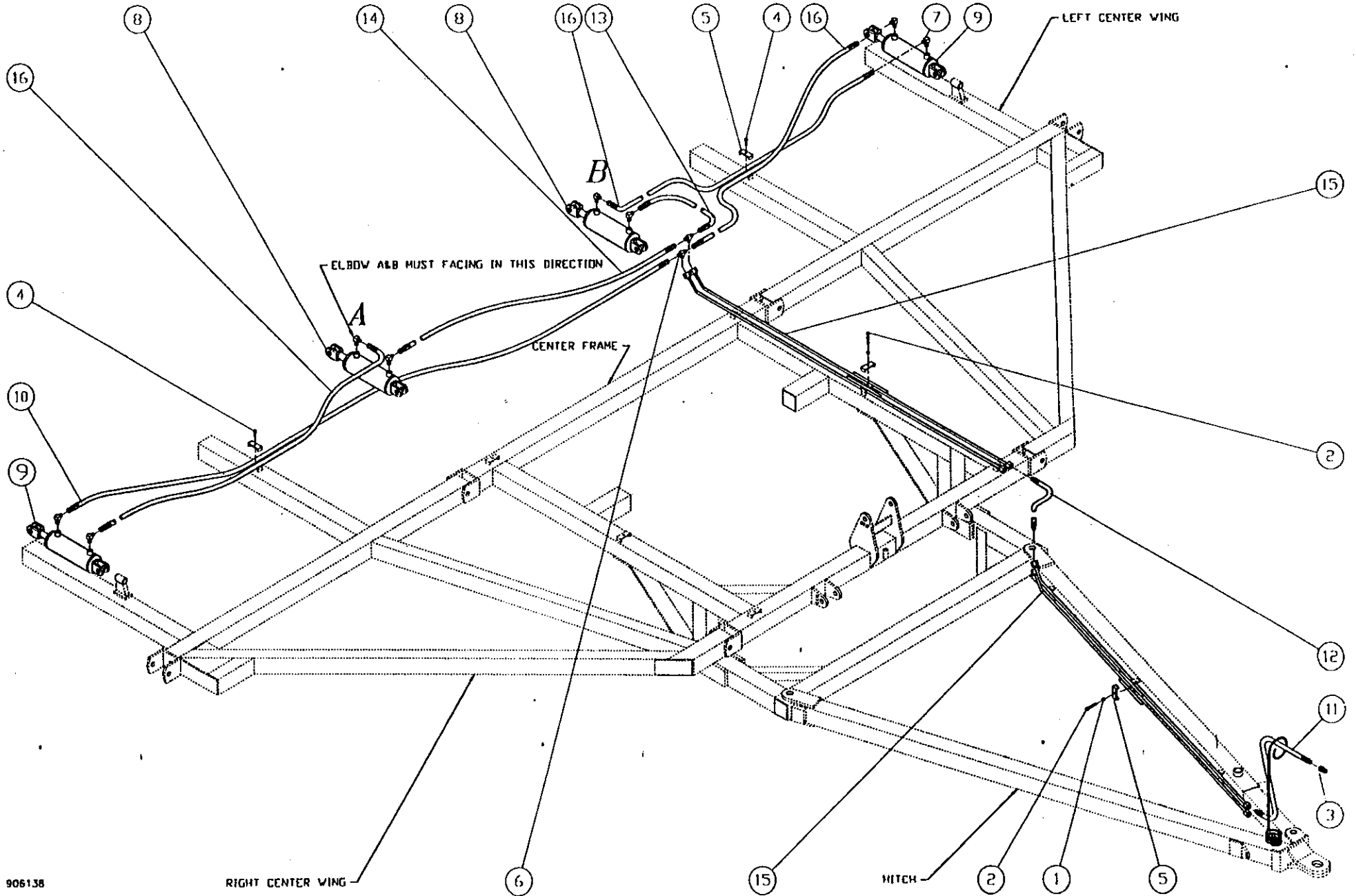


906232

Depth Control Hydraulics 22-1/2'

1.	N0012011	Lockwasher 3/8"
2.	N0012532	Capscrew 3/8" x 2-3/4"
3.	N0017641	Nipple-male tip 1/2"
4.	N0029802	Screw 3/8" x 1-1/4" serrated flange
5.	N0082051	Pipe clip
6.	196037	Tee 1/2"mjic
7.	196058	Elbow 90 degree 1/2"mpt - 1/2"mjic
8.	196101	Hyd. cylinder, slave, 3-3/4" x 8"
	324018	Seal kit
9.	196103	Hyd. cylinder, slave, 3-1/2" x 8"
	324120	Seal kit
10.	403688	Hyd. hose 3/8" x 168" 1/2"fjic ends
11.	A0045178	Hyd. hose 3/8" x 90-1/2" 1/2"mjic - 1/2"mpt
12.	A0045278	Hyd. hose 3/8" x 33-1/2" 1/2"mjic ends
13.	A0045478	Hyd. hose 3/8" x 39-3/8" 1/2"fjic ends
14.	905868	Hyd. hose 3/8" x 78" 1/2"fjic ends
15.	906260	Hyd. pipe assembly 1/2" x 96"
16.	906263	Hyd. hose 3/8" x 100" 1/2"fjic ends

DEPTH CONTROL HYDRAULICS FOR 22.5'

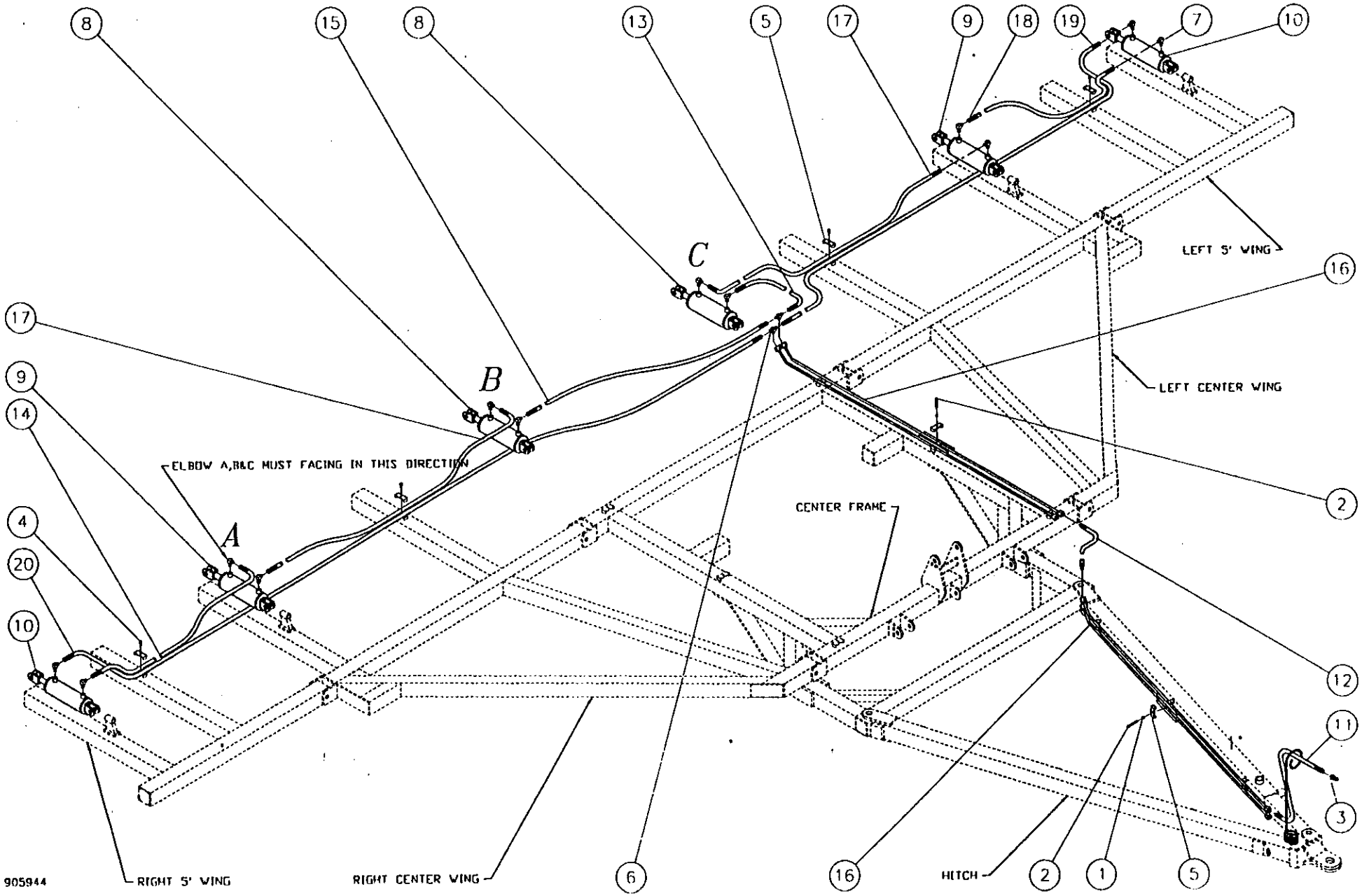


906138

Depth Control Hydraulics 32-1/2'

1.	N0012011	Lockwasher 3/8"
2.	N0012532	Capscrew 3/8" x 2-3/4"
3.	N0017641	Nipple-male tip 1/2"
4.	N0029802	Screw 3/8" x 1-1/4" serrated flange
5.	N0082051	Pipe clip
6.	196037	Tee 1/2"mjic
7.	196058	Elbow 90 degree 1/2"mpt - 1/2"mjic
8.	196100	Hyd. cylinder, master, 4" x 8"
	324029	Seal kit
9.	196101	Hyd. cylinder, slave, 3-3/4" x 8"
	324018	Seal kit
10.	196103	Hyd. cylinder, slave, 3-1/2" x 8"
	324120	Seal kit
11.	A0045178	Hyd. hose 3/8" x 90-1/2" 1/2"mjic - 1/2"mpt
12.	A0045278	Hyd. hose 3/8" x 33-1/2" 1/2"mjic ends
13.	A0045478	Hyd. hose 3/8" x 39-3/8" 1/2"fjic ends
14.	905867	Hyd. hose 3/8" x 72" 1/2"fjic ends
15.	905868	Hyd. hose 3/8" x 78" 1/2"fjic ends
16.	906260	Hyd. pipe assembly 1/2" x 96"
17.	906263	Hyd. hose 3/8" x 100" 1/2"fjic ends
18.	906270	Hyd. hose 3/8" x 62" 1/2"fjic ends
19.	906271	Hyd. hose 3/8" x 162" 1/2"fjic ends
20.	906272	hyd. hose 3/8" x 229" 1/2"fjic ends

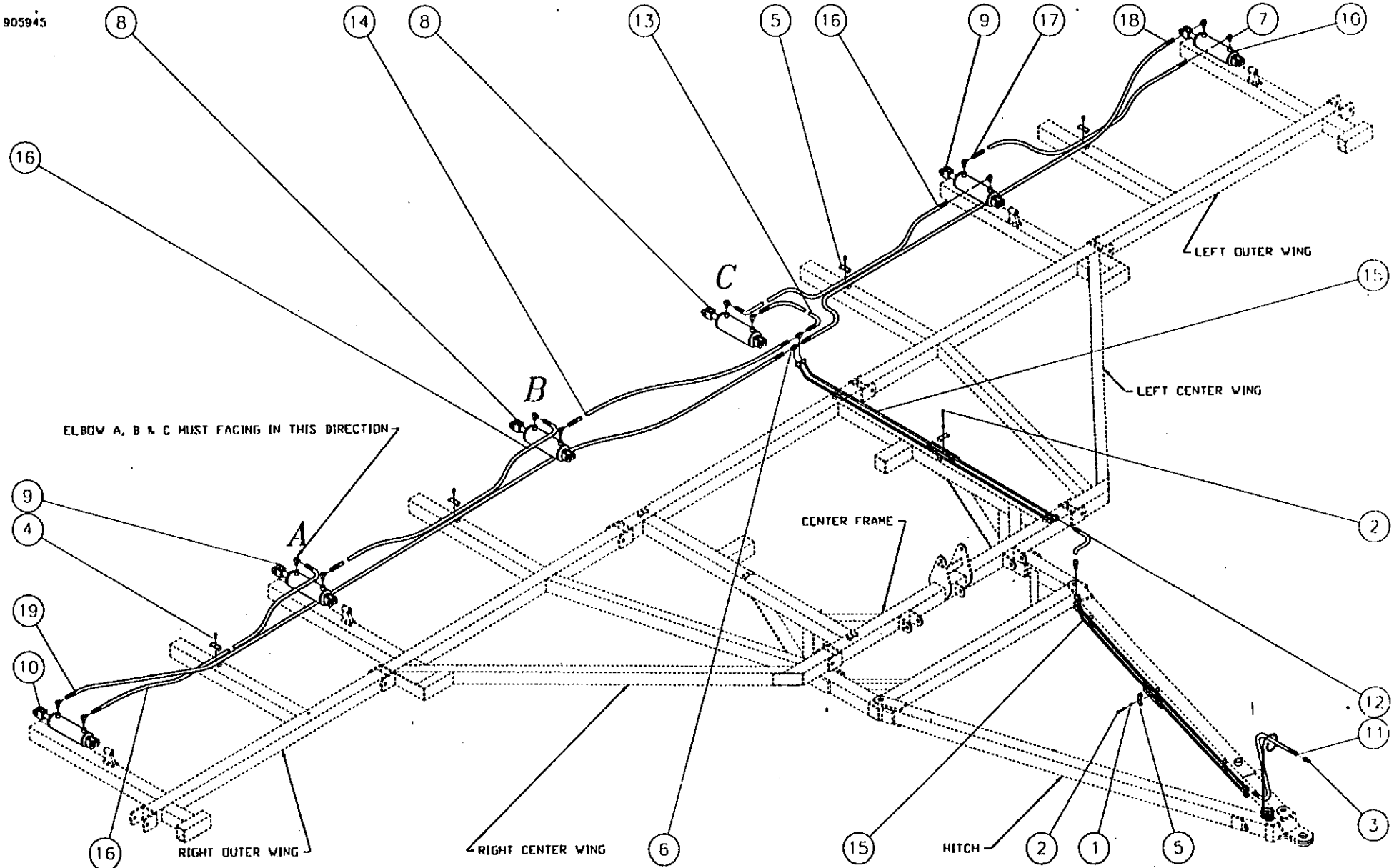
DEPTH CONTROL HYDRAULICS FOR 32.5'



Depth Control Hydraulics 37-1/2'

1.	N0012011	Lockwasher 3/8"
2.	N0012532	Capscrew 3/8" x 2-3/4"
3.	N0017641	Nipple-male tip 1/2"
4.	N0029802	Screw 3/8" x 1-1/4" serrated flange
5.	N0082051	Pipe clip
6.	196037	Tee 1/2"mjic
7.	196058	Elbow 90 degree 1/2"mpt - 1/2"mjic
8.	196100	Hyd. cylinder, master, 4" x 8"
	324029	Seal kit
	324116	Stroke control
9.	196101	Hyd. cylinder, slave, 3-3/4" x 8"
	324018	Seal kit
10.	196103	Hyd. cylinder, slave, 3-1/2" x 8"
	324120	Seal kit
11.	A0045178	Hyd. hose 3/8" x 90-1/2" 1/2"mjic - 1/2"mpt
12.	A0045278	Hyd. hose 3/8" x 33-1/2" 1/2"mjic ends
13.	A0045478	Hyd. hose 3/8" x 39-3/8" 1/2"fjic ends
14.	905868	Hyd. hose 3/8" x 78" 1/2"fjic ends
15.	906260	Hyd. pipe assembly 1/2" x 96"
16.	906263	Hyd. hose 3/8" x 100" 1/2"fjic ends
17.	906267	Hyd. hose 3/8" x 92" 1/2"fjic ends
18.	906268	Hyd. hose 3/8" x 192" 1/2"fjic ends
19.	906269	hyd. hose 3/8" x 259" 1/2"fjic ends

DEPTH CONTROL HYDRAULICS FOR 37.5'

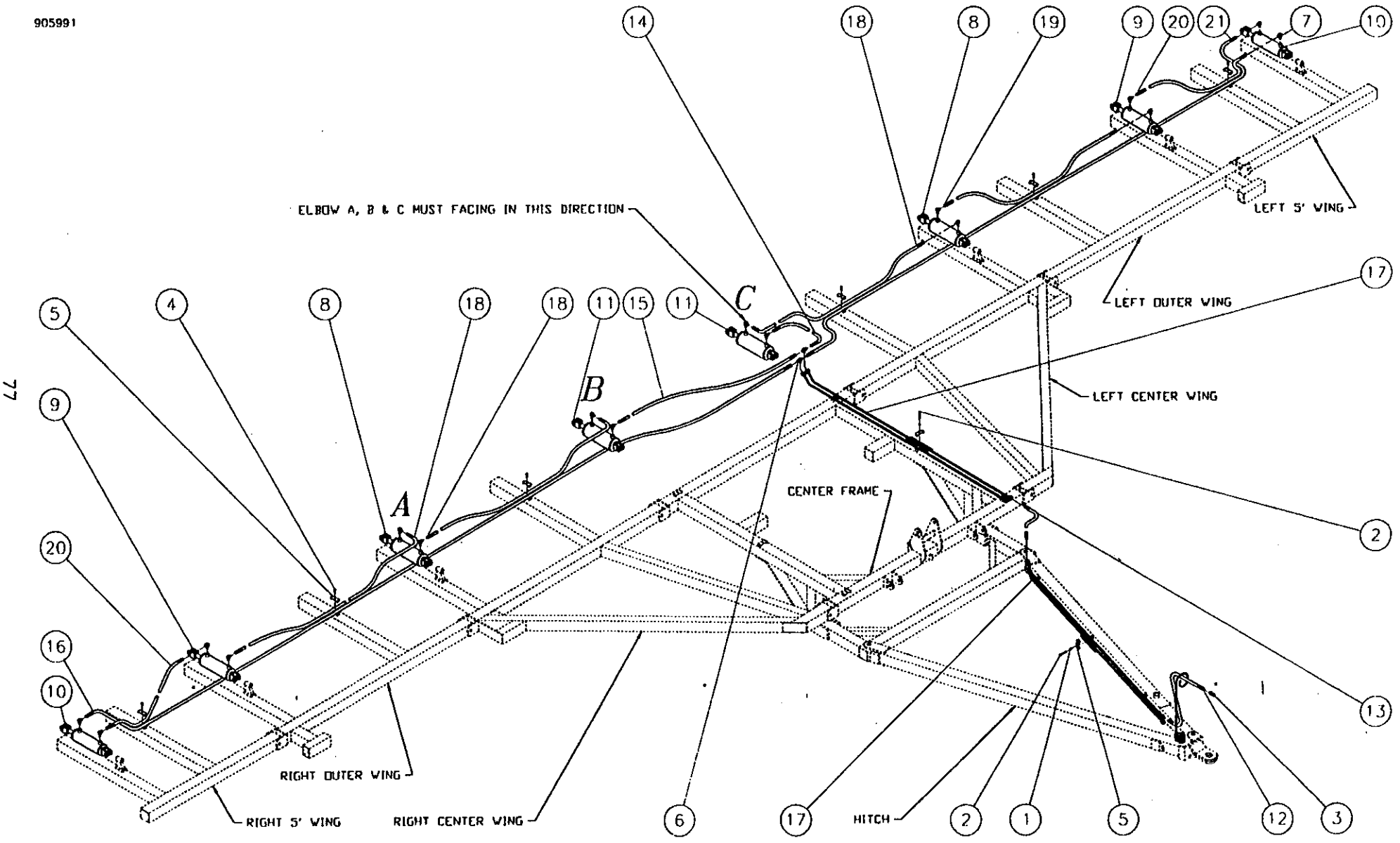


Depth Control Hydraulics 47-1/2'

1.	N0012011	Lockwasher 3/8"
2.	N0012532	Capscrew 3/8" x 2-3/4"
3.	N0017641	Nipple-male tip 1/2"
4.	N0029802	Screw 3/8" x 1-1/4" serrated flange
5.	N0082051	Pipe clip
6.	196037	Tee 1/2"mjic
7.	196058	Elbow 90 degree 1/2"mpt - 1/2"mjic
8.	196100	Hyd. cylinder, master, 4" x 8"
	324029	Seal kit
9.	196101	Hyd. cylinder, slave, 3-3/4" x 8"
	324018	Seal kit
10.	196103	Hyd. cylinder, slave, 3-1/2" x 8"
	324120	Seal kit
11.	196104	Hyd. cylinder, slave, 4-1/2" x 8"
	324119	Seal kit
	324116	Stroke control
12.	A0045178	Hyd. hose 3/8" x 90-1/2" 1/2"mjic - 1/2"mpt
13.	A0045278	Hyd. hose 3/8" x 33-1/2" 1/2"mjic ends
14.	A0045478	Hyd. hose 3/8" x 39-3/8" 1/2"fjic ends
15.	905868	Hyd. hose 3/8" x 78" 1/2"fjic ends
16.	905877	Hyd. hose 3/8" x 325-5/8" 1/2"fjic ends
17.	906260	Hyd. pipe assembly 1/2" x 96"
18.	906263	Hyd. hose 3/8" x 100" 1/2"fjic ends
19.	906267	Hyd. hose 3/8" x 92" 1/2"fjic ends
20.	906270	Hyd. hose 3/8" x 62" 1/2"fjic ends
21.	906273	hyd. hose 3/8" x 256" 1/2"fjic ends

DEPTH CONTROL HYDRAULICS FOR 47.5'

905991

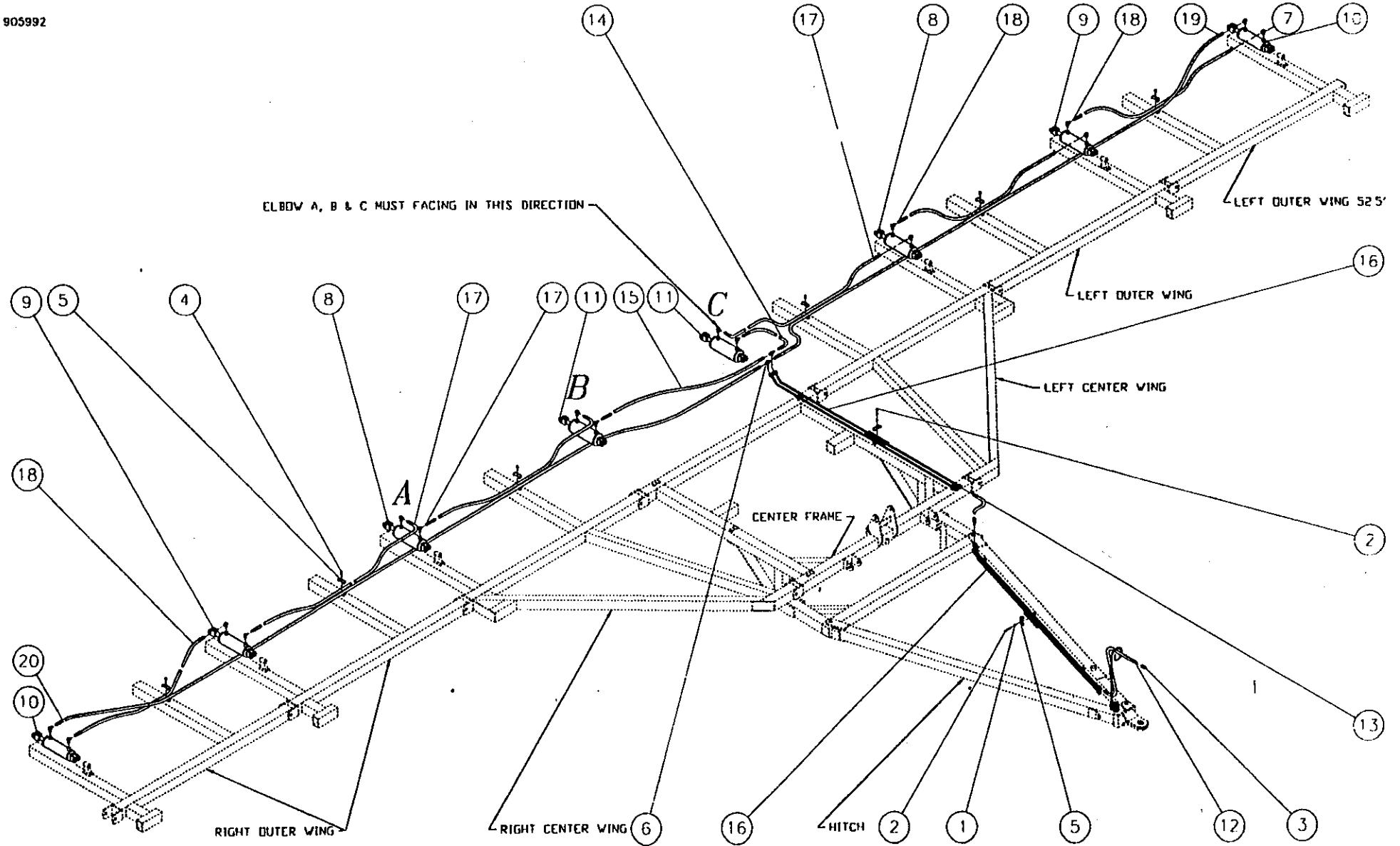


Depth Control Hydraulics 52-1/2'

1.	N0012011	Lockwasher 3/8"
2.	N0012532	Capscrew 3/8" x 2-3/4"
3.	N0017641	Nipple-male tip 1/2"
4.	N0029802	Screw 3/8" x 1-1/4" serrated flange
5.	N0082051	Pipe clip
6.	196037	Tee 1/2"mjic
7.	196058	Elbow 90 degree 1/2"mpt - 1/2"mjic
8.	196100	Hyd. cylinder, master, 4" x 8"
	324029	Seal kit
9.	196101	Hyd. cylinder, slave, 3-3/4" x 8"
	324018	Seal kit
10.	196103	Hyd. cylinder, slave, 3-1/2" x 8"
	324120	Seal kit
11.	196104	Hyd. cylinder, slave, 4-1/2" x 8"
	324119	Seal kit
	324116	Stroke control
12.	A0045178	Hyd. hose 3/8" x 90-1/2" 1/2"mjic - 1/2"mpt
13.	A0045278	Hyd. hose 3/8" x 33-1/2" 1/2"mjic ends
14.	A0045478	Hyd. hose 3/8" x 39-3/8" 1/2"fjic ends
15.	905868	Hyd. hose 3/8" x 78" 1/2"fjic ends
16.	906260	Hyd. pipe assembly 1/2" x 96"
17.	906263	Hyd. hose 3/8" x 100" 1/2"fjic ends
18.	906267	Hyd. hose 3/8" x 92" 1/2"fjic ends
19.	906274	Hyd. hose 3/8" x 286" 1/2"fjic ends
20.	906275	hyd. hose 3/8" x 353" 1/2"fjic ends

DEPTH CONTROL HYDRAULICS FOR 52.5'

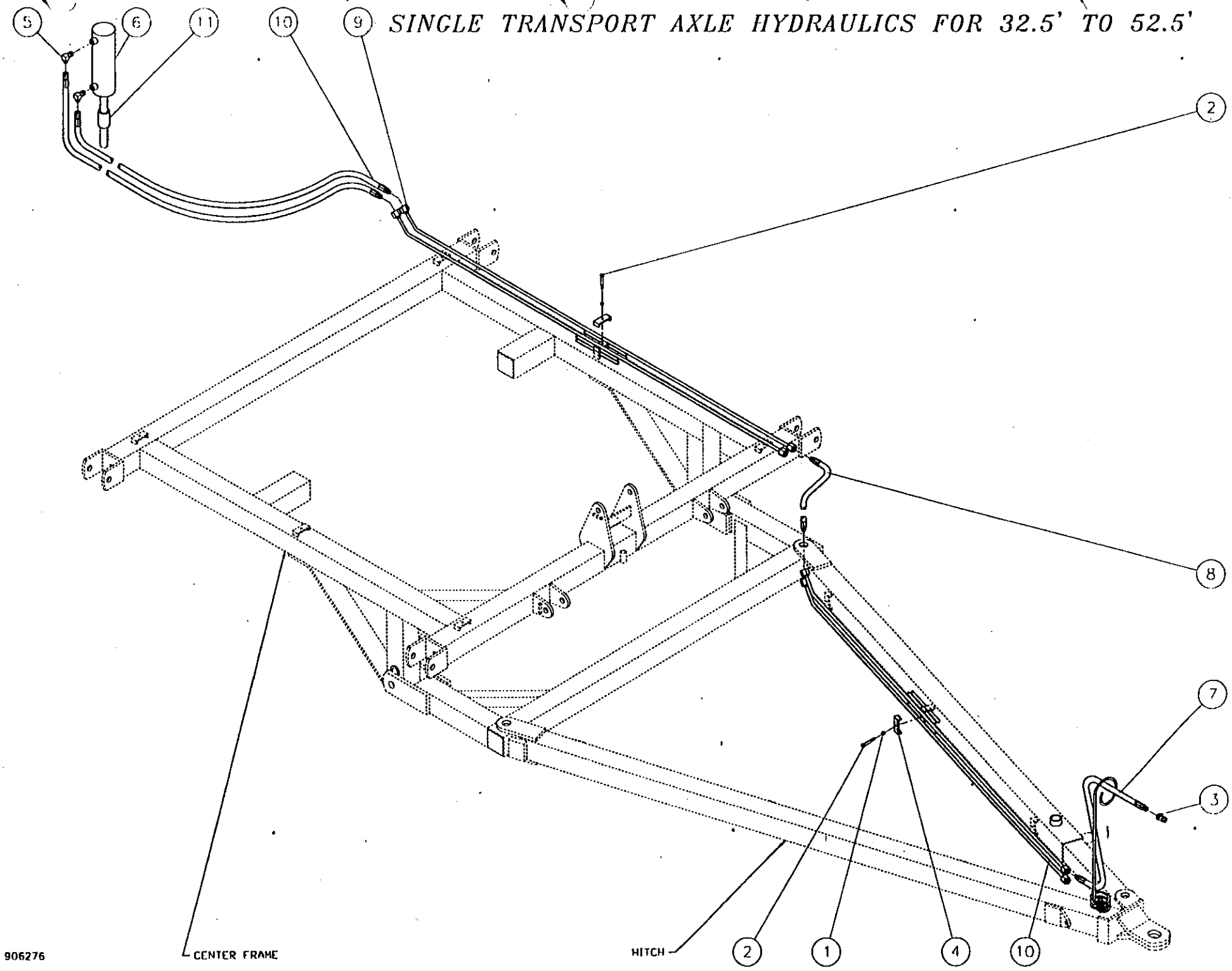
905992



Single Transport Axle Hydraulics for 32.5' to 52.5'

1.	N0012011	Lockwasher 3/8"
2.	N0012532	Capscrew 3/8" x 2-3/4"
3.	N0017641	Nipple-male tip 1/2"
4.	N0082051	Pipe clip
5.	196058	Elbow 90 deg 1/2"mpt - 1/2"mjic
6.	196105 324121	Hyd. cylinder, 3-1/2" x 8" Seal kit
7.	A0045178	Hyd. hose 3/8" x 90-1/2" 1/2"mjic - 1/2"mpt
8.	A0045278	Hyd. hose 3/8" x 33-1/2" 1/2"mjic ends
9.	906260	Hyd. pipe assembly 1/2" x 96"
10.	906266	Hyd. hose 3/8" x 60" 1/2"mjic - 1/2"fjic
11.	906287	Transport lock collar

SINGLE TRANSPORT AXLE HYDRAULICS FOR 32.5' TO 52.5'

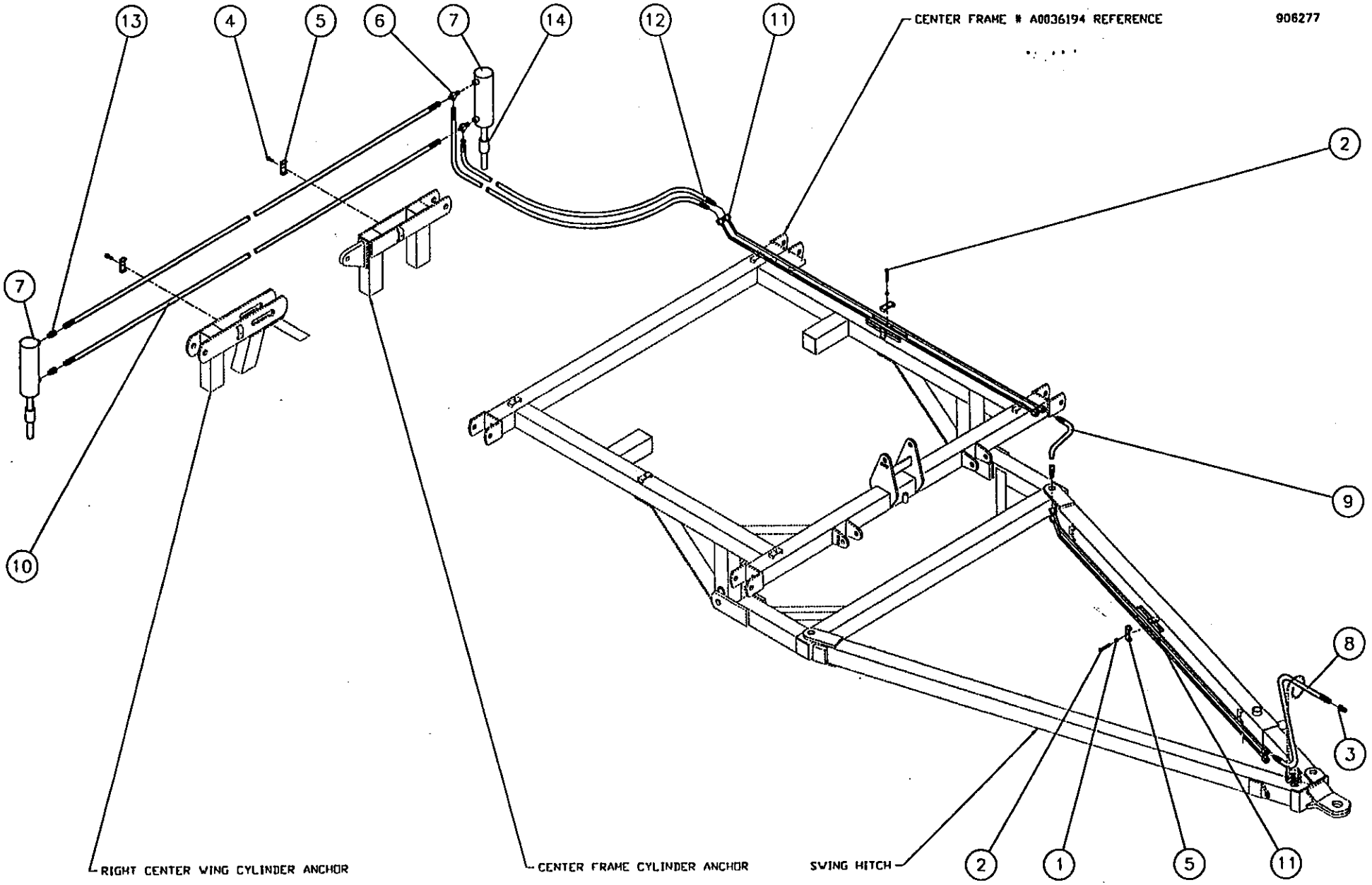


906276

Double Transport Axle Hydraulic for 32.5' to 52.5'

1.	N0012011	Lockwasher 3/8"
2.	N0012532	Capscrew 3/8" x 2-3/4"
3.	N0017641	Nipple-male tip 1/2"
4.	N0029802	Screw 3/8" x 1-1/4" serrated flange
5.	N0082051	Pipe clip
6.	196036	Tee-male run 1/2"mpt - 1/2"mjic
7.	196105 324121	Hyd. cylinder, 3-1/2" x 8" Seal kit
8.	A0045178	Hyd. hose 3/8" x 90-1/2" 1/2"mjic - 1/2"mpt
9.	A0045278	Hyd. hose 3/8" x 33-1/2" 1/2"mjic ends
10.	906258	Hyd. hose 3/8" x 134" 1/2"mpt - 1/2"fjic
11.	906260	Hyd. pipe assembly 1/2" x 96"
12.	906266	Hyd. hose 3/8" x 60" 1/2"mjic - 1/2"fjic
13.	711t116	Adapter-swivel 1/2"mpt - 1/2"fpt
14.	906287	Transport lock collar

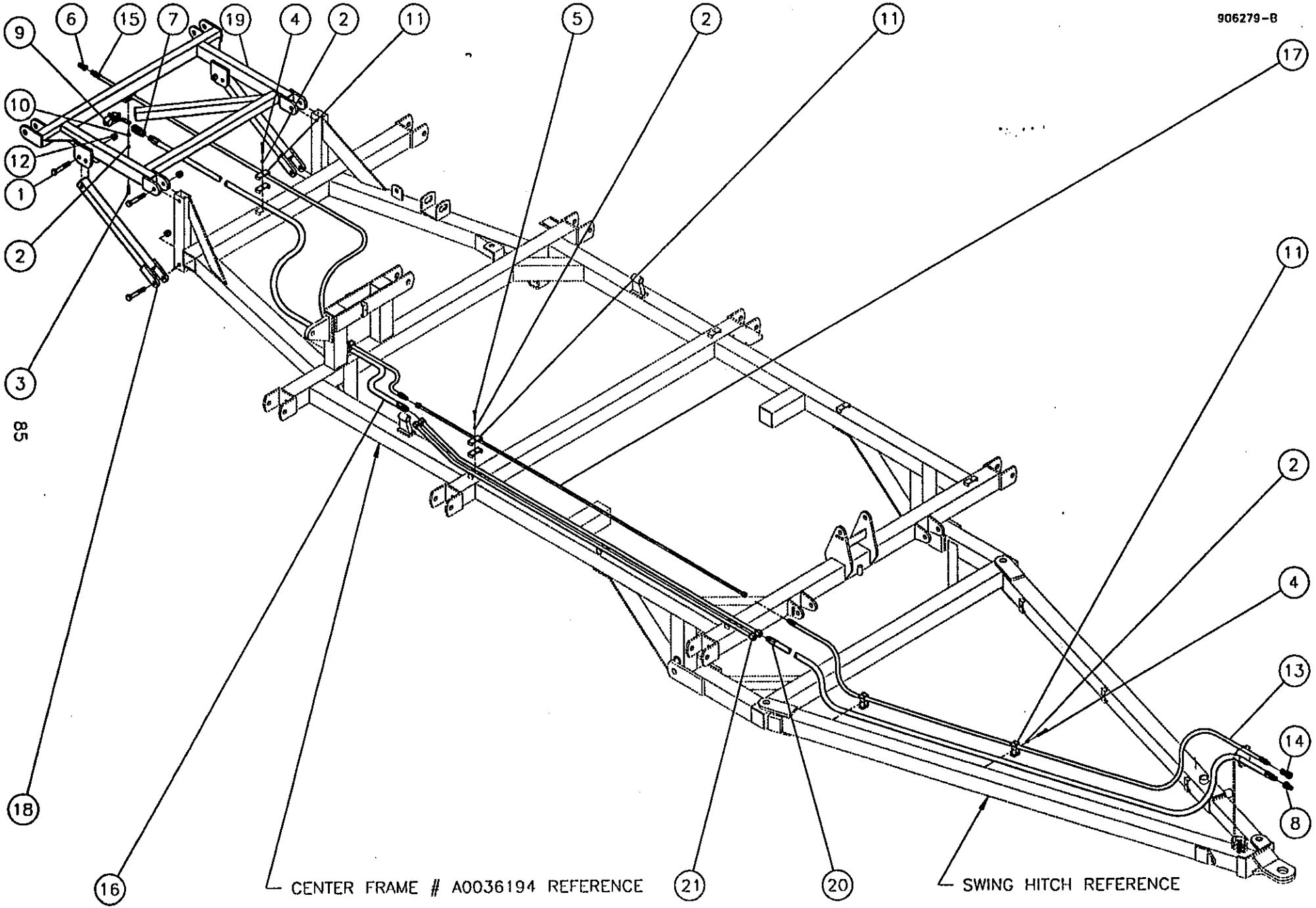
DOUBLE TRANSPORT AXLE HYDRAULICS FOR 32.5' TO 52.5'



REAR HITCH ADAPTER AND HYDRAULICS ASSEMBLY

			QUANTITY
1.	N0007722	CAPSCREW, 3/4" X 4-1/2"	6
2.	N0012011	LOCK WASHER, 3/8"	9
3.	N0012101	CAPSCREW, 3/8" X 1-3/4"	1
4.	N0012103	CAPSCREW, 3/8" X 2-1/2"	5
5.	N0014187	CAPSCREW, 3/8" X 2"	3
6.	N0017641	NIPPLE-MALE TIP, 1/2"	1
7.	N0017642	COUPLER FEMALE, 3/4"	2
8.	N0017643	NIPPLE-MALE TIP, 3/4"	2
9.	N0017644	BRACKET DOUBLE BREAK AWAY, 3/4"	1
10.	N0018603	FLAT WASHER, 3/8"	1
11.	N0082051	PIPE CLIP	17
12.	N0086754	LOCK NUT, 3/4"	6
13.	403165	HOSE HYDRAULIC 1/2" X 15-1/2FT 1/2MNPT-1/2MJIC	1
14.	403233	FEMALE QUICK COUPLER	1
15.	500389	HOSE HYDRAULIC 1/2" X 138" 1/2MNPT-1/2MJIC	1
16.	500402	HOSE HYDRAULIC 3/4" X 10FT 3/4MNPT-3/4MJIC	2
17.	703293	HYDRAULIC PIPE ASSEMBLY 1/2" X 100"	1
18.	906036	HITCH ADAPTER BRACE	2
19.	906042	REAR HITCH ADAPTER	1
20.	906146	HOSE HYDRAULIC 3/4" X 18FT 3/4MNPT-3/4MJIC	2
21.	906257	HYDRAULIC PIPE ASSEMBLY 3/4" X 108"	2

REAR HITCH ADAPTER AND HYDRAULICS ASSEMBLIES

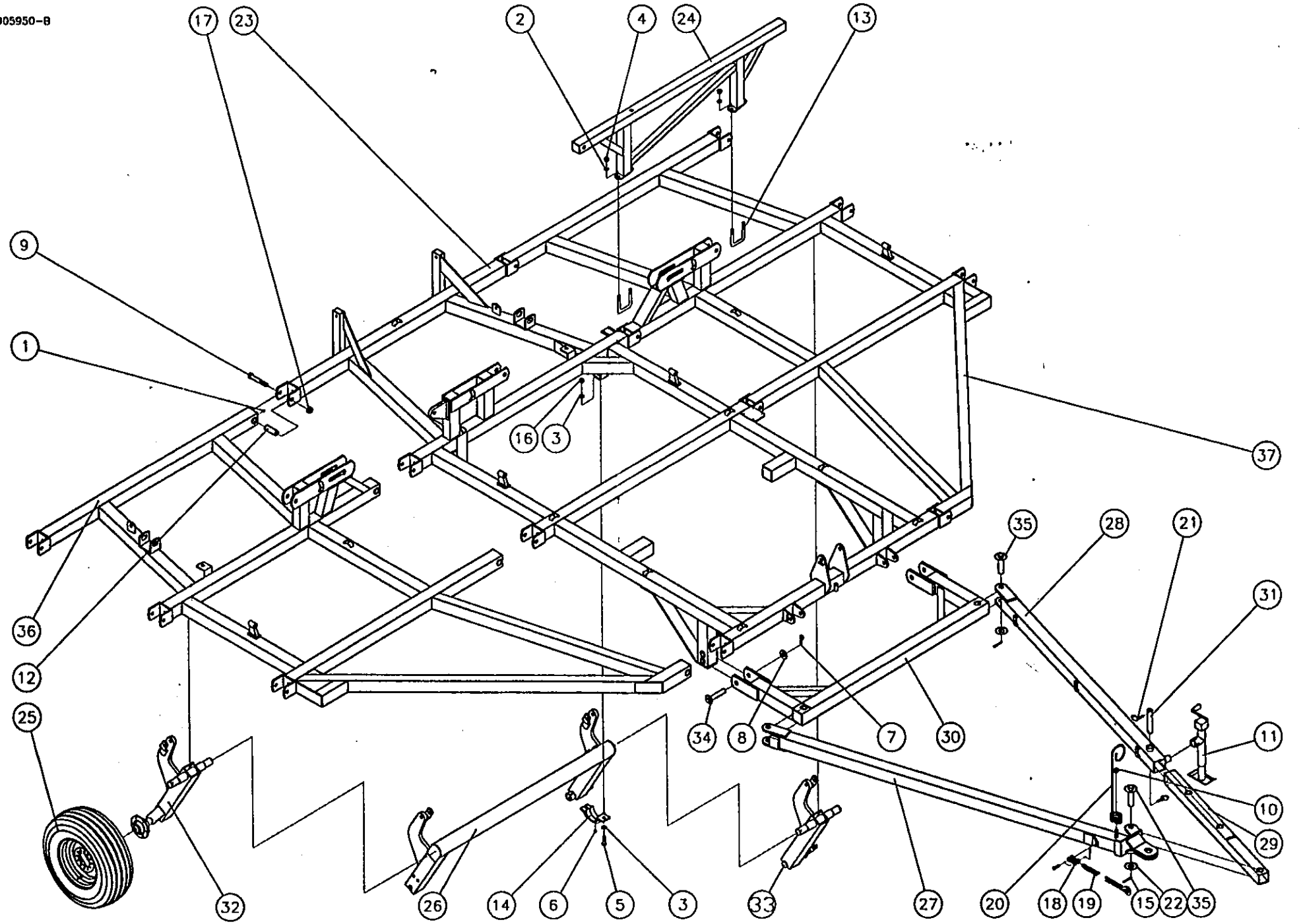


FRAMES AXLES AND HITCH ASSEMBLIES FOR 22-1/2'

1.	N0008005	Grease zerk straight
2.	N0012009	Lockwasher 3/4" med. spring
3.	N0012065	Flatwasher 3/4" SAE
4.	N0012066	Nut 3/4" hex
5.	N0012070	Capscrew 3/4" x 2-1/2"
6.	N0012132	Grease zerk 90 degree
7.	N0012290	Pin-hair 3/16" x 3-9/16"
8.	N0013569	Washer steel 1-1/4"
9.	N0018681	Capscrew 1" x 6-1/2"
10.	N0050852	Nut 3/4" flange
11.	N0058211	Hitch jack
12.	N0082069	Hinge bushing
13.	N0082980	U bolt 3/4" x 4" x 5-1/2"
14.	N0083084	Axle bearing cap
15.	N0084700	Pin-cotter 3/16" x 2-1/2"
16.	N0086754	Nylock nut, 3/4"
17.	N0086755	Nylock nut, 1"
18.	176003	Clevis - double 1/2"
19.	176004	Safety chain w/ hook
20.	197019	Hose Holder
21.	252001	Pin lynch
22.	401412	Flatwasher 1-1/2"
23.	A0036194	Center frame
24.	A0036394	Double ended wing holdup
25.	A0037200	Wheel assembly
	A0039678	Tire, 9.5L x 15 x 8ply
	A0039590	Rim, 15" x 8", 6 bolt
26.	905743	Center axle less spindles and hubs -Spindle & hubs, see page 106 AND 107
27.	906004	RH swing hitch arm
28.	906007	LH outer tube
29.	906010	LH inner tube
30.	906015	Hitch cross tube
31.	906016	Swing hitch lock pin
32.	906238	RH single axle less hub - hub see p.106 AND 107
33.	906239	LH single axle less hub - hub see p.106 AND 107
34.	906243	1-1/4" x 7-1/4" pin welded
35.	906245	1-1/2" x 6-5/8" pin welded
36.	906381	RH center wing frame
37.	906382	LH center wing frame

FRAMES, AXLES AND HITCH ASSEMBLIES FOR 22-1/2'

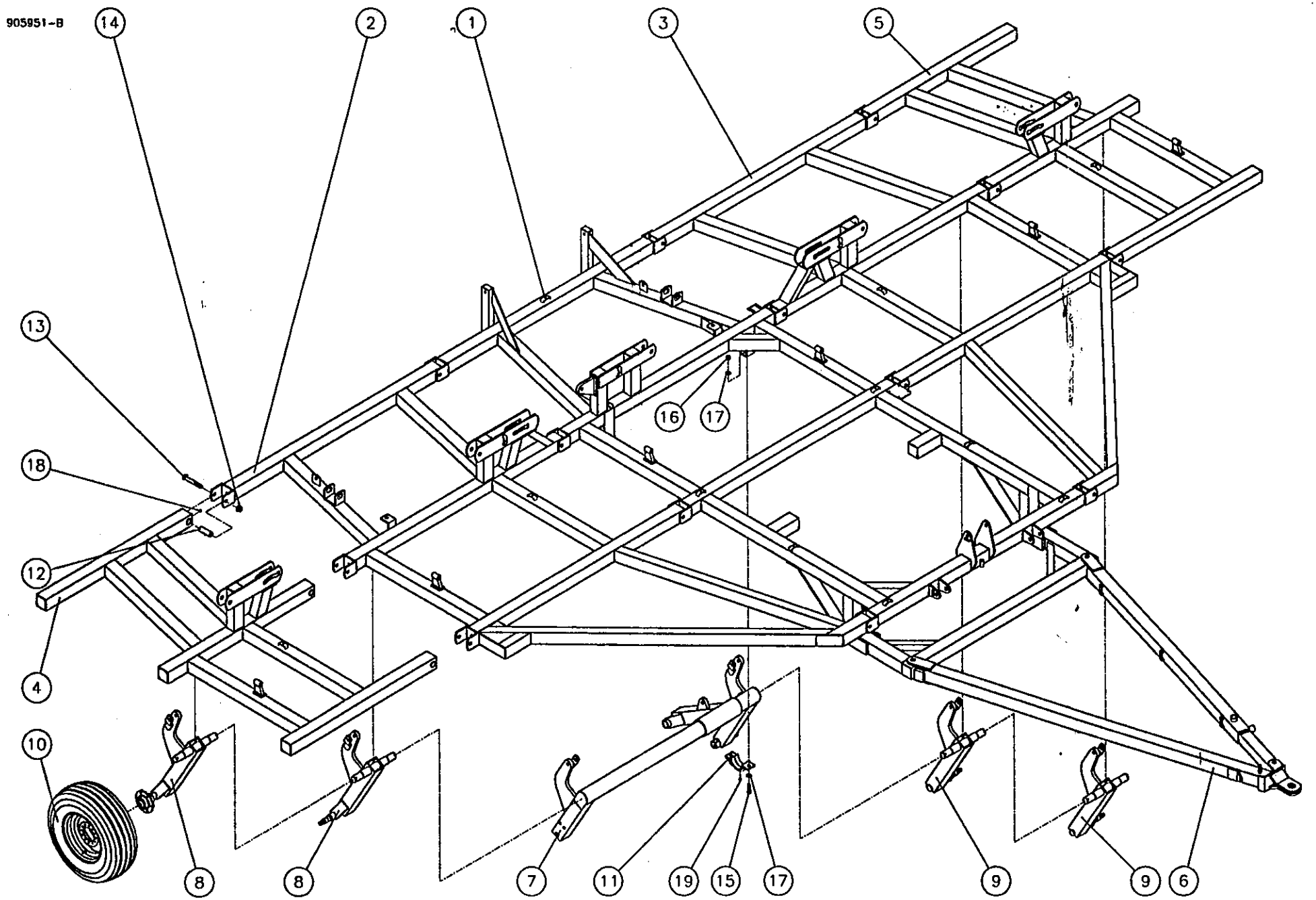
905950-B



FRAMES AND AXLES 32-1/2'

			QUANTITY
1.	A0036194	Center frame	1
2.	906381	RH center wing frame	1
3.	906382	LH center wing frame	1
4.	905769	RH 5' outer wing frame	1
5.	905770	LH 5' outer wing frame	1
6.		Hitch assembly - see page 86 AND 87	
7.	A0042194	Center axle less spindles and hubs Spindle & hubs see page. 106 AND 107	2
8.	906238	RH single axle less hub Spindle & hub see page. 106 AND 107	2
9.	906239	LH single axle less hub Spindle & hub see page. 106 AND 107	2
10.	A0037200	Wheel assembly, 9.5L x 15 x 8 ply, 6 bolt	11
	A0039678	Tire, 9.5L x 15 x 8ply	Ref
	A0039590	Rim, 15" x 8", 6 bolt	Ref
11.	N0083084	Axle bearing cap	2
12.	N0082069	Hinge bushing	14
13.	N0018681	Capscrew, 1 x 6-1/2	14
14.	N0086755	Nylock nut, 1"	14
15.	N0012070	Capscrew, 3/4 x 2-1/2"	4
16.	N0086754	Nylock nut, 3/4"	4
17.	N0012065	Flatwasher, 3/4" SAE	4
18.	N0008005	Grease zerk, straight	14
19.	N0012132	Grease zerk, 90 degree	4

FRAMES AND AXLES ASSEMBLIES FOR 32-1/2'

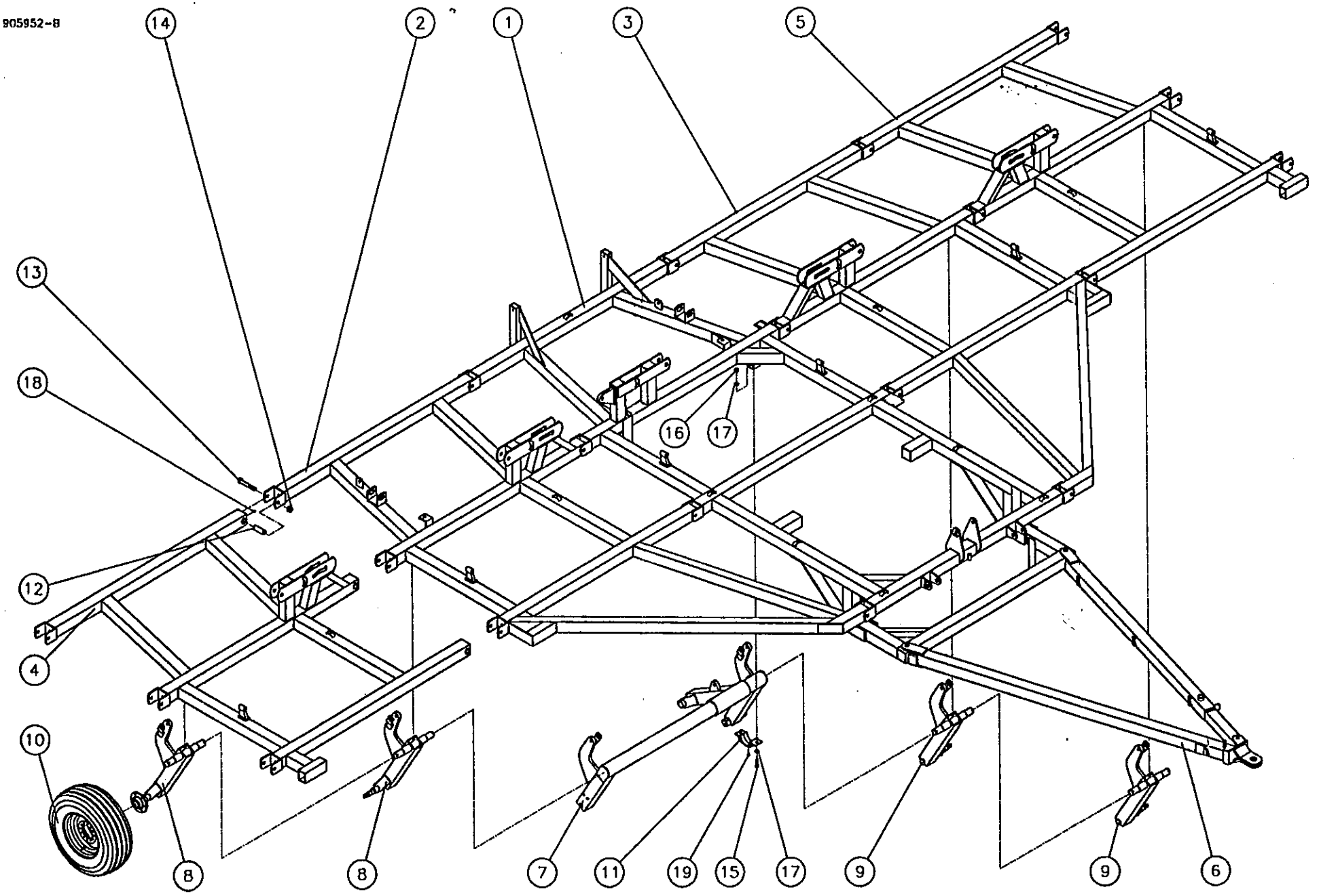


FRAMES AND AXLES 37-1/2'

			QUANTITY
1.	A0036194	Center frame	1
2.	906381	RH center wing frame	1
3.	906382	LH center wing frame	1
4.	906378	RH outer wing frame	1
5.	906379	LH outer wing frame	1
6.		Hitch assembly - see page 86 AND 87	
7.	A0042194	Center axle less spindles and hubs -Spindle & hub see page. 106 AND 107	1
8.	906238	RH single axle less hub -Spindle & hub see page. 106 AND 107	2
9.	906239	LH single axle less hub -Spindle & hub see page. 106 AND 107	2
10.	A0037200	Wheel assembly, 9.5L x 15 x 8 ply, 6 bolt	13
	A0039678	Tire, 9.5L x 15 x 8ply	Ref
	A0039590	Rim, 15" x 8", 6 bolt	Ref
11.	N0083084	Axle bearing cap	2
12.	N0082069	Hinge bushing	14
13.	N0018681	Capscrew, 1 x 6-1/2	14
14.	N0086755	Nylock nut, 1"	14
15.	N0012070	Capscrew, 3/4 x 2-1/2"	4
16.	N0086754	Nylock nut, 3/4"	4
17.	N0012065	Flatwasher, 3/4" SAE	4
18.	N0008005	Grease zerk, straight	14
19.	N0012132	Grease zerk, 90 degree	4

FRAMES AND AXLES ASSEMBLIES FOR 37-1/2'

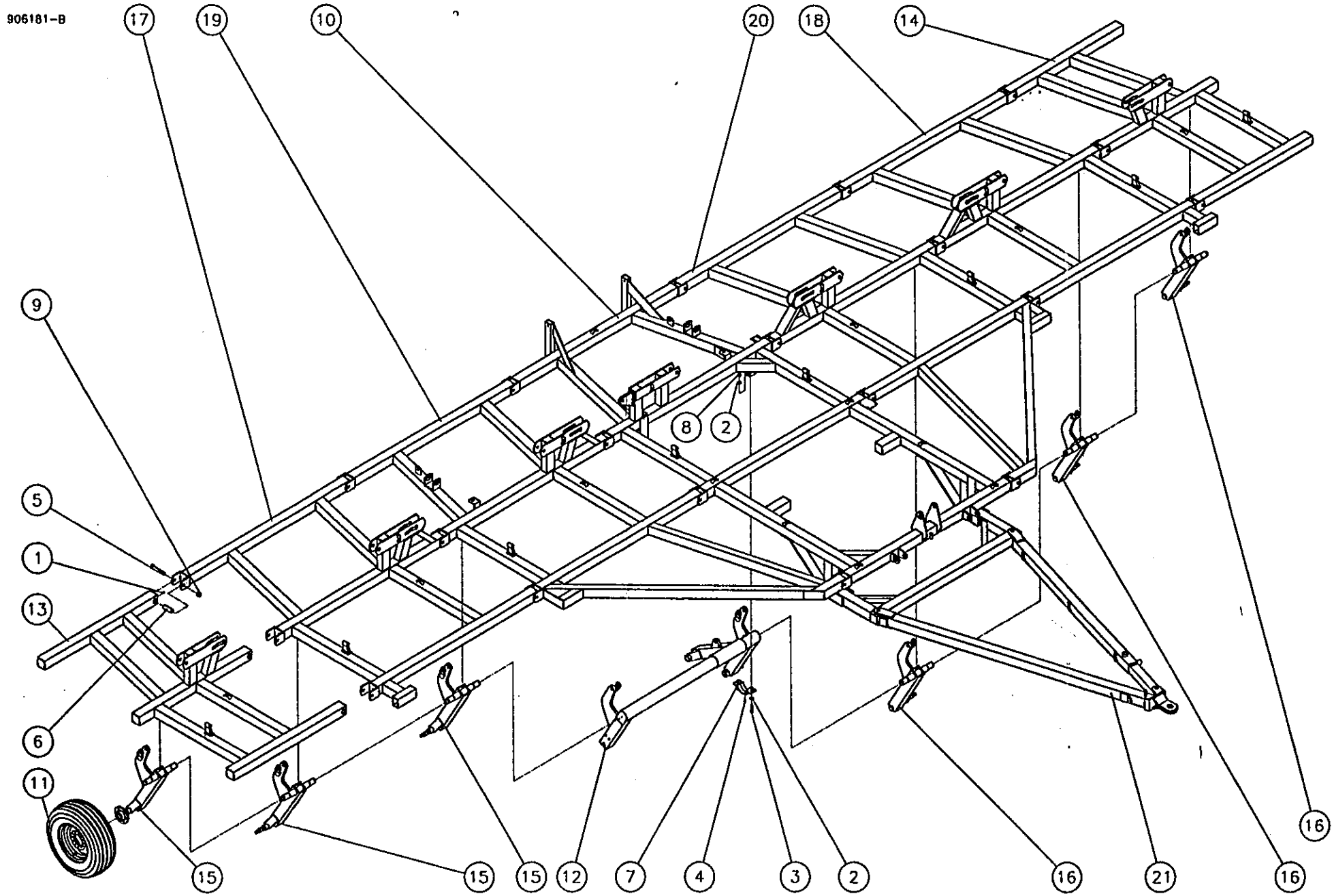
905952-B



FRAMES AND AXLES 47-1/2'

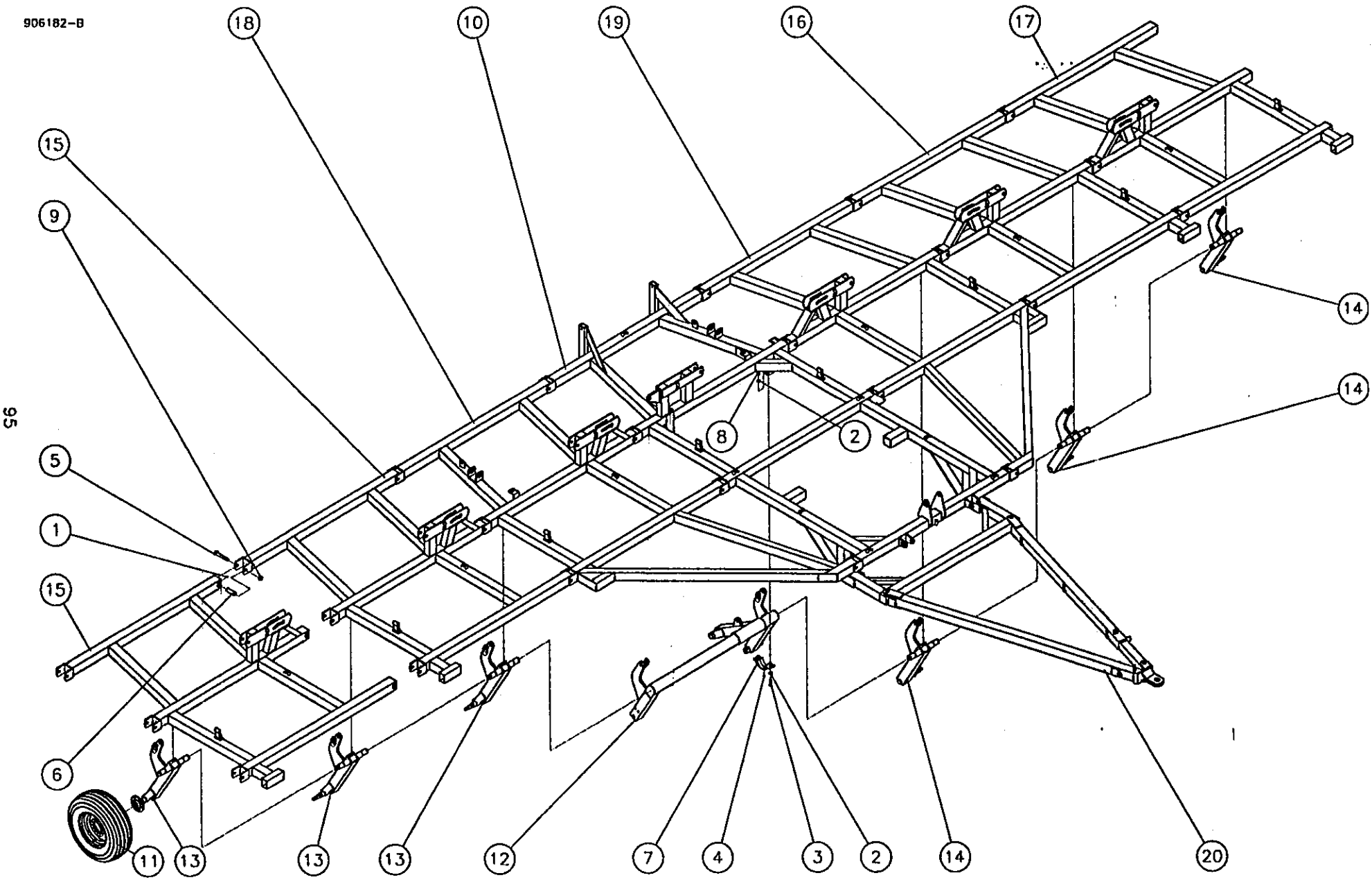
			QUANTITY
1.	N0008005	Grease Zerk, straight	18
2.	N0012065	Flat Washer, 3/4"	4
3.	N0012070	Capscrew, 3/4" x 2-1/2"	4
4.	N0012132	Grease zerk, 90 deg.	4
5.	N0018681	Capscrew, 1" x 6-1/2"	18
6.	N0082069	Hinge bushing	18
7.	N0083084	Axle bearing cap	2
8.	N0086754	Nylok nut, 3/4"	4
9.	N0086755	Nylok nut, 1"	18
10.	A0036194	Centre Frame	1
11.	A0037200	Wheel Assembly, 9.5L x 15 x 8 ply, 6 bolt	16
	A0039678	Tire, 9.5L x 15 x 8ply	Ref
	A0039590	Rim, 15" x 8", 6 bolt	Ref
12.	A0042194	Centre Axle less spindle & hubs -Spindle & hub see page. 106 AND 107	1
13.	905769	RH 5' Outer wing	1
14.	905770	LH 5' Outer wing	1
15.	906238	RH Single Axle -Spindle & hub see page. 106 AND 107	3
16.	906239	LH Single Axle -Spindle & hub see page. 106 AND 107	3
17.	906378	LH Outer Wing	1
18.	906379	RH Outer Wing	1
19.	906381	RH Centre Frame	1
20.	906382	LH Centre Frame	1
21.		Hitch Assembly - See page. 86 AND 87	

FRAMES AND AXLES ASSEMBLIES FOR 47–1/2'



			QUANTITY
1.	N0008005	Grease Zerk, straight	18
2.	N0012065	Flat Washer, 3/4"	4
3.	N0012070	Capscrew, 3/4" x 2-1/2"	4
4.	N0012132	Grease zerk, 90 deg.	4
5.	N0018681	Capscrew, 1" x 6-1/2"	18
6.	N0082069	Hinge bushing	18
7.	N0083084	Axle bearing cap	2
8.	N0086754	Nylok nut, 3/4"	4
9.	N0086755	Nylok nut, 1"	18
10.	A0036194	Centre Frame	1
11.	A0037200	Wheel Assembly, 9.5L x 15 x 8 ply, 6 bolt	18
	A0039678	Tire, 9.5L x 15 x 8ply	Ref
	A0039590	Rim, 15" x 8", 6 bolt	Ref
12.	A0042194	Centre Axle less spindle & hubs -Spindle & hub see page. 106 AND 107	1
13.	906238	RH Single Axle -Spindle & hub see page. 106 AND 107	3
14.	906239	LH Single Axle -Spindle & hub see page. 106 AND 107	3
15.	906378	RH Outer Wing	2
16.	906379	LH Outer Wing	1
17.	906380	LH Outer Wing, 52'	1
18.	906381	RH Centre wing Frame	1
19.	906382	LH Centre wing Frame	1
20.		Hitch Assembly - See page. 86 AND 87	

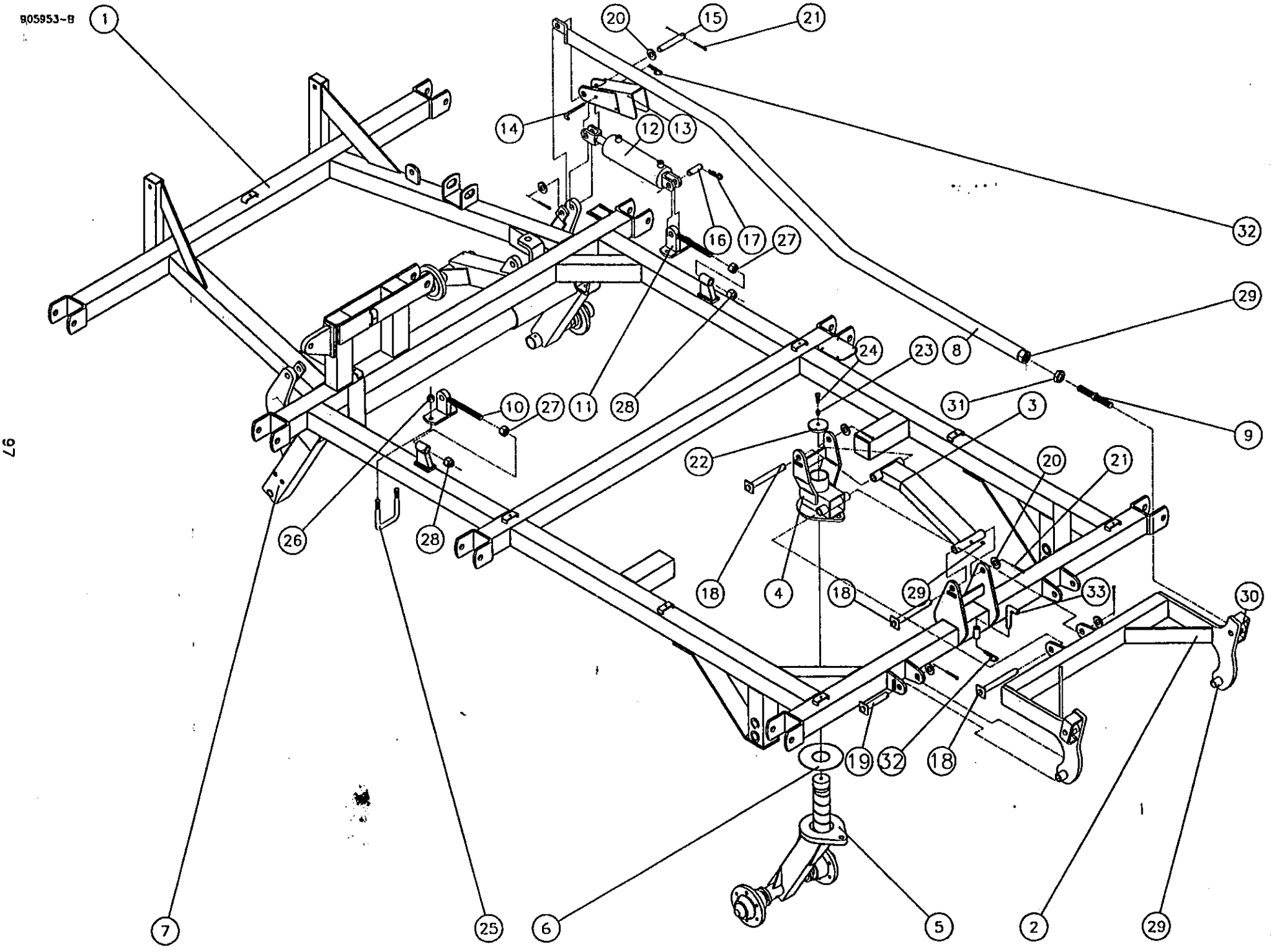
FRAMES AND AXLES ASSEMBLIES FOR 52.5'



Front Gauge Wheel & Levelling Assembly - Centre Frame

			QUANTITY
1.	A0036194	Center frame	1
2.	A0036594	Center gauge wheel support	1
3.	906310	Parallel link, center gauge wheel	1
4.	905629	Common dual caster housing	1
5.	905761	Dual caster axle ass'y.	1
	905760	Single caster ass'y. on 22.5'	Ref
		-See page. 102 AND 103	
6.	701503	Washer	1
7.	A0036894	Center axle	1
8.	A0036794	Long offset connecting link	2
9.	A0042293	Turnbuckle, connecting link	2
10.	A0044494	RH adjustable ram lug	1
11.	A0033194	LH adjustable ram lug	1
12.	196100	Hyd. cylinder, master, 4" x 8"	2
13.	905941	Cylinder holdout bar c/w decal	2
14.	906298	Lock Pin, hold-up bar	2
15.	A0039293	Cylinder pin, 5-1/2"	2
16.	00018309	Cylinder pin	2
17.	N0012290	Hair pin 3/16" x 3-9/16"	4
18.	A0033693	Pin, parallel link, 8-1/2"	3
19.	A0045093	Pin, gauge wheel support, 5-3/8"	2
20.	N0012262	Flatwasher, 1" SAE	9
21.	N0012479	Cotterpin, 1/4" x 2"	9
22.	701461	Caster cap	1
23.	N0012007	Lockwasher, 1/2"	1
24.	N0012008	Capscrew, 1/2" x 1-1/2"	1
25.	A0044593	U-bolt, 5/8" x 4-1/16" x 5-1/2"	2
26.	N0012484	Nylock nut, 5/8"	4
27.	N0016580	Hex nut, 1"	2
28.	N0086755	Nylock nut, 1"	2
29.	N0008005	Grease zerk, straight	7
30.	N0012132	Grease zerk, 90 degree	2
31.	N0086420	Jam nut 1-1/8"	2
32.	248005	Hair pin 1/8 x 2-9/16	3
33.	705314	Caster lock pin	1

FRONT GAUGE WHEEL & LEVELLING ASSEMBLY FOR CENTER FRAME

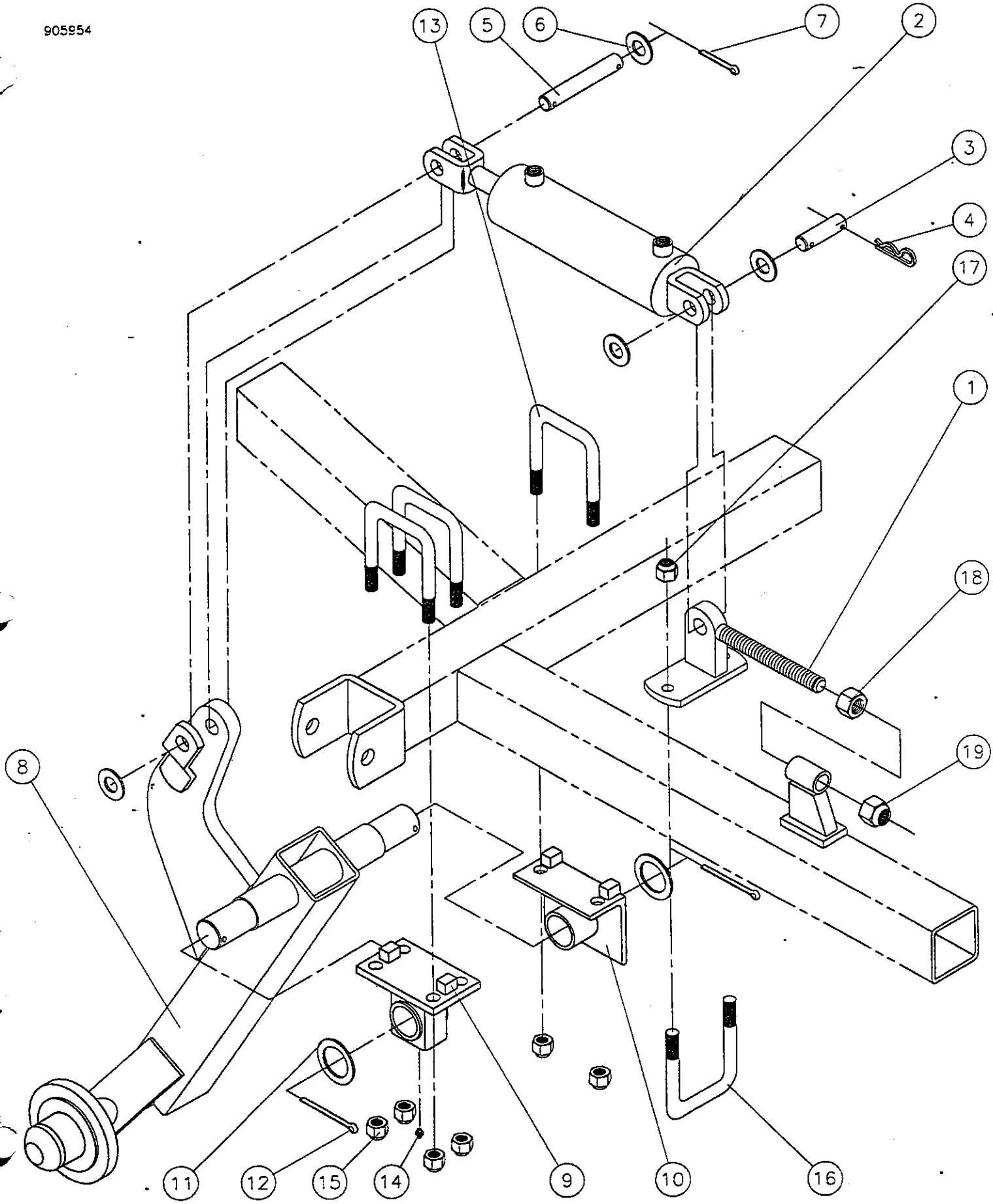


Single Axle Mounting Assembly

			QUANTITY
1.	A0044494	RH adjustable axle ram lug	1
	A0033194	LH adjustable axle ram lug	Ref
2.	196101	Hyd. cylinder, slave, 3-3/4" x 8"	1
	324018	Seal kit	
	196103	Hyd. cylinder, slave, 3-1/2" x 8"	Ref
	324120	Seal kit	
3.	00018309	Cylinder pin	1
4.	N0012290	Hairpin, No.6	2
5.	N0903298	Cylinder pin, 5"	1
6.	N0012262	Flatwasher, 1" SAE	4
7.	N0012479	Cotterpin, 1/4" x 2"	2
8.	906238	RH single axle, less hub	1
	906239	LH single axle, less hub	Ref
		-Spindle & hubs see page. 106 AND 107	
9.	A0032494	Axle pivot bracket, outer	1
10.	N0905099	Axle pivot bracket, inner	1
11.	157009	Bushing, machinery 2"	2
12.	N0084045	Cotterpin, 5/16" x 3"	2
13.	N0082980	U-bolt, 3/4" x 4-1/16" x 5-1/2"	3
14.	N0008005	Grease zerk, straight	6
15.	N0086754	Locknut, 3/4"	6
16.	A0044593	U-bolt, 5/8" x 4-1/16" x 5-1/4"	2
17.	N0012484	Nylock nut, 5/8"	2
18.	N0016580	Hex nut, 1"	1
19.	N0086755	Nylock nut, 1"	1

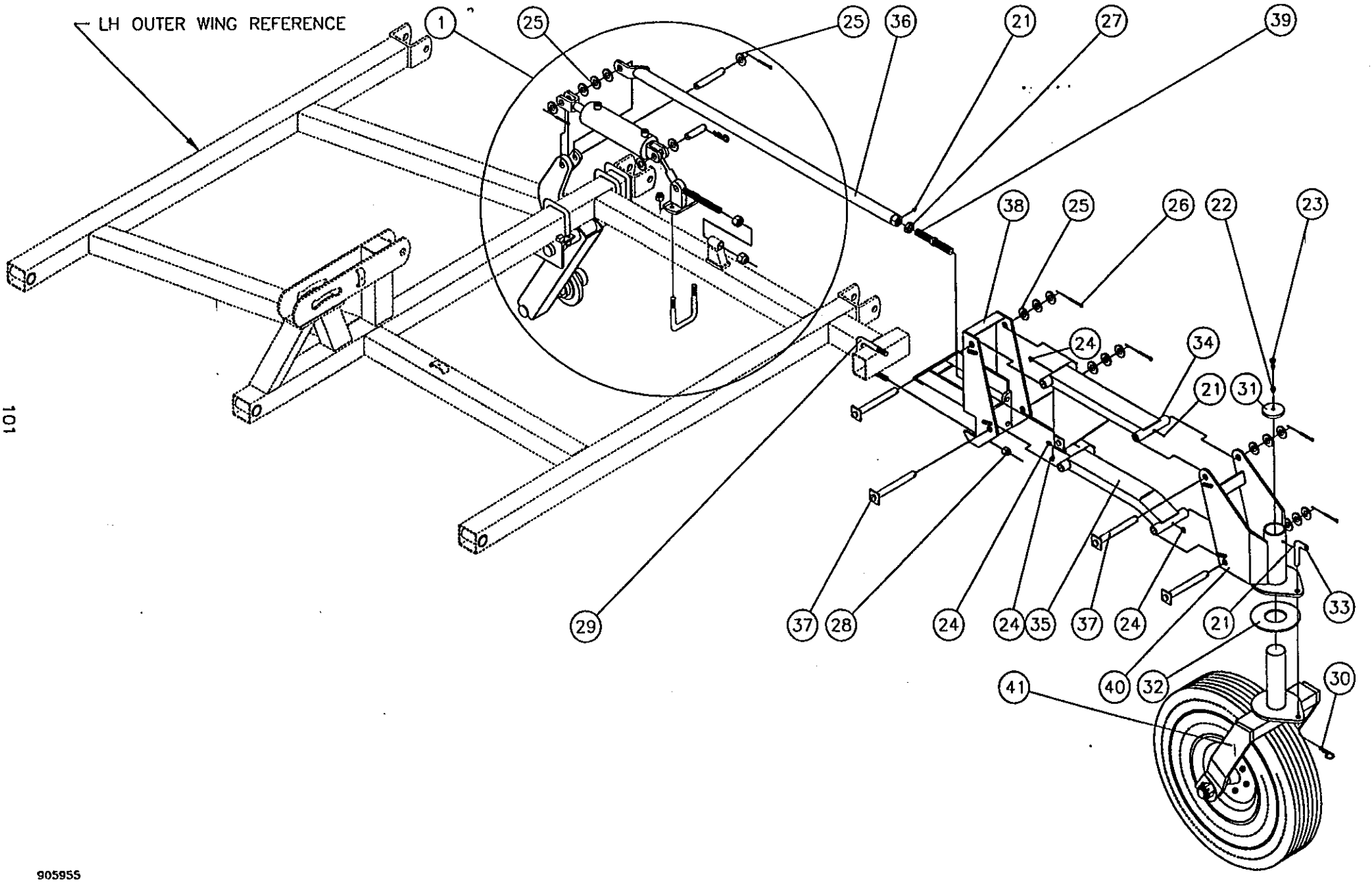
SINGLE AXLE MOUNTING ASSEMBLY

905954



1.-20.		SEE SINGLE AXLE MOUNTING ASS'Y PG. 98 AND 99-
21.	N0008005	Grease zerk, straight
22.	N0012007	Lockwasher, 1/2"
23.	N0012008	Capscrew, 1/2" x 1-1/2"
24.	N0012132	Grease zerk, 90 degree
25.	N0012262	Flatwasher, 1" SAE
26.	N0012479	Cotterpin, 1/4" x 2"
27.	N0086420	Nut 1-1/8" hex jam
28.	N0086754	Nylock nut, 3/4"
29.	N0098099	U-bolt, 3/4" x 4-1/16" x 4-1/2"
30.	N0248005	Hair pin 1/8" x 2-9/16"
31.	701461	Caster cap
32.	701503	Washer
33.	705314	Caster lock pin
34.	A0031597	Top link c/w zerks
35.	A0031894	Parallel link c/w zerks
36.	A0033094	Connecting link outer gauge wheel
37.	A0033693	Pin, 8-1/2"
38.	A0041094	Gauge wheel anchor
39.	A0042293	Turnbuckle
40.	905625	Common caster housing
41.	905760	Single caster assembly -See page. 102 AND 103

FRONT OUTER GAUGE WHEEL ASSEMBLY



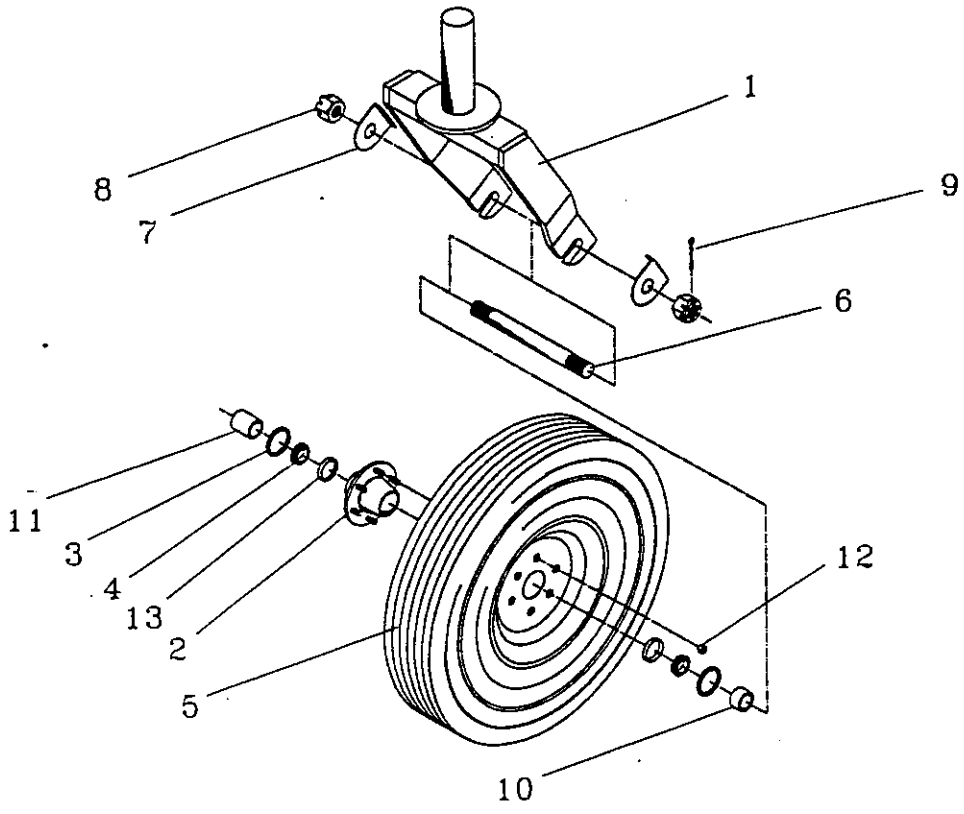
Single Caster Assembly - 905760

			QUANTITY
1.	701460	Single caster weld't	1
2.	191007	Hub, 6-bolt forked c/w cups, studs	1
3.	327007	Seal (SE 24)	2
4.	091008	Bearing	2
5.	A0037200 N0081931 A0039678	Wheel and tire ass'y Rim, 15 x 8x 6 bolt Tire, 9.5L x 15 8 ply	1
6.	701464	Spindle	1
7.	703191	Spindle lock plate	2
8.	N0084698	Nut hex slotted 1-1/2" UNF.	2
9.	N0012827	Cotter pin 1/4" x 3"	2
10.	701462	Spindle spacer short	1
11.	701463	Spindle spacer long	1
12.	N0081968	Wheel nut	6
13.	N0084003	Cup #4	1

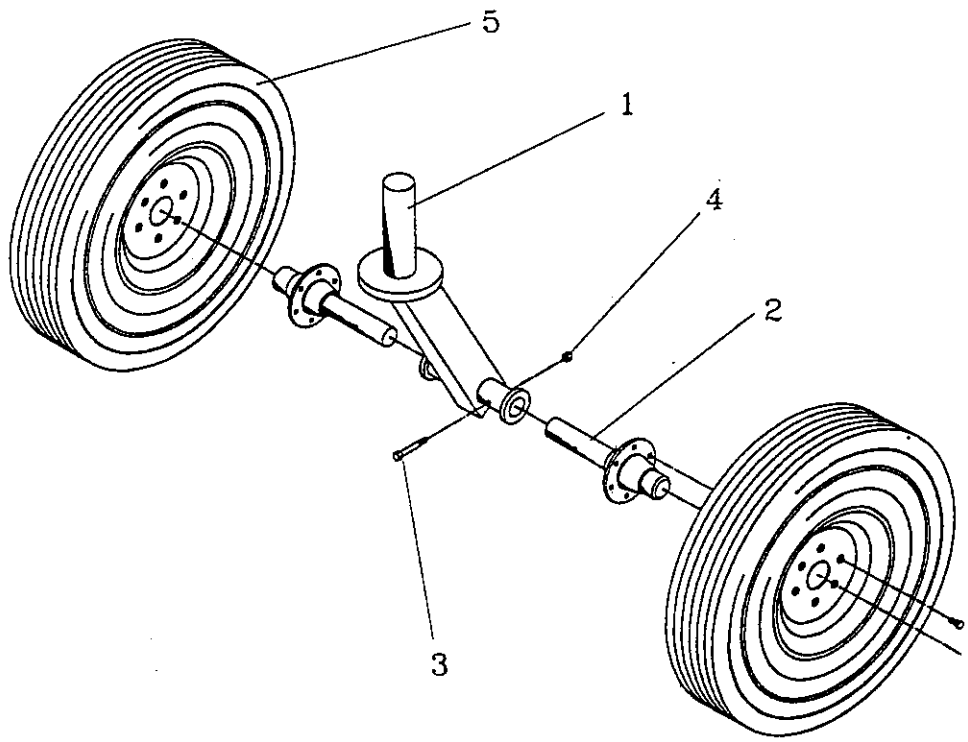
Dual Caster Assembly - 905761

1.	703112	Dual caster weld't	1
2.	701465	Hub and spindle ass'y 11-1/2" -See page. 104 AND 105	2
3.	N0012006	Capscrew 1/2" x 3-1/2"	2
4.	N0012083	Nylon locknut 1/2"	2
5.	A0037200 N0081931 A0039678	Wheel and tire ass'y Rim, 15 x 8 x 6 bolt Tire, 9.5L x 15 8 ply	2

SINGLE CASTOR ASSEMBLY



DOUBLE CASTOR ASSEMBLY

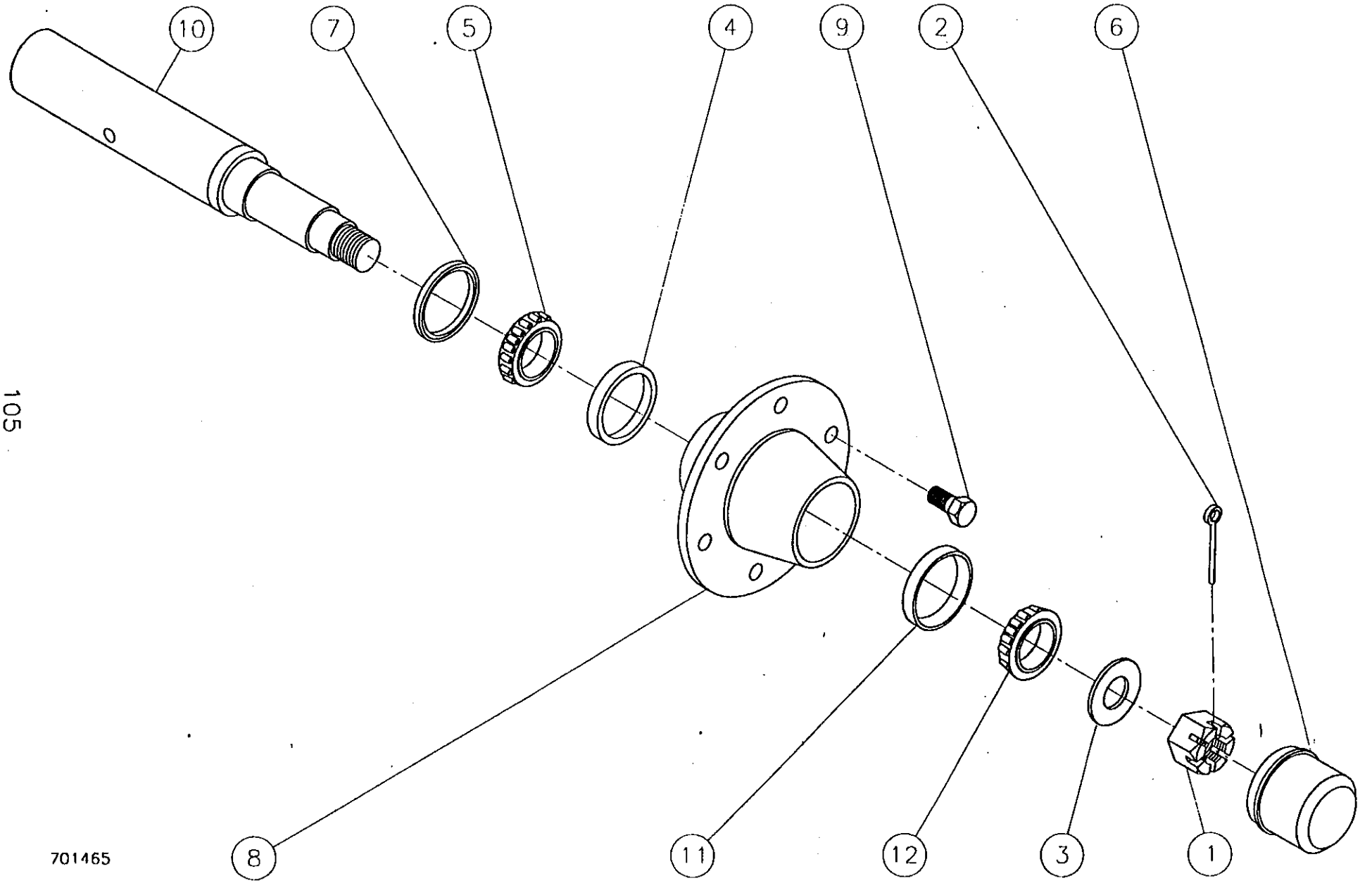


403683

614 HUB AND SPINDLE ASSEMBLY - 701465

			QUANTITY
1.	N0001686	SLOTTED NUT, 1"	1
2.	N0012115	PIN-COTTER, 3/16" X 2"	1
3.	N0012262	FLAT WASHER, 1"	1
4.	N0012547	INNER CUP-BEARING	REF.
5.	N0012548	INNER CONE-BEARING	1
6.	N0049101	DUST CAP	1
7.	N0082053	SEAL	1
8.	N0083154	HUB, 6-BOLT, HD, W/CUPS ITEMS INCLUDES ITEM #4 AND #11	1
9.	N0083163	HUB BOLT, 9/16" X 1-1/4"	6
10.	701544	SPINDLE 614 X 11-1/2"	1
11.	360135V1	OUTER CUP-BEARING	REF.
12.	360136V1	OUTER CONE-BEARING	1

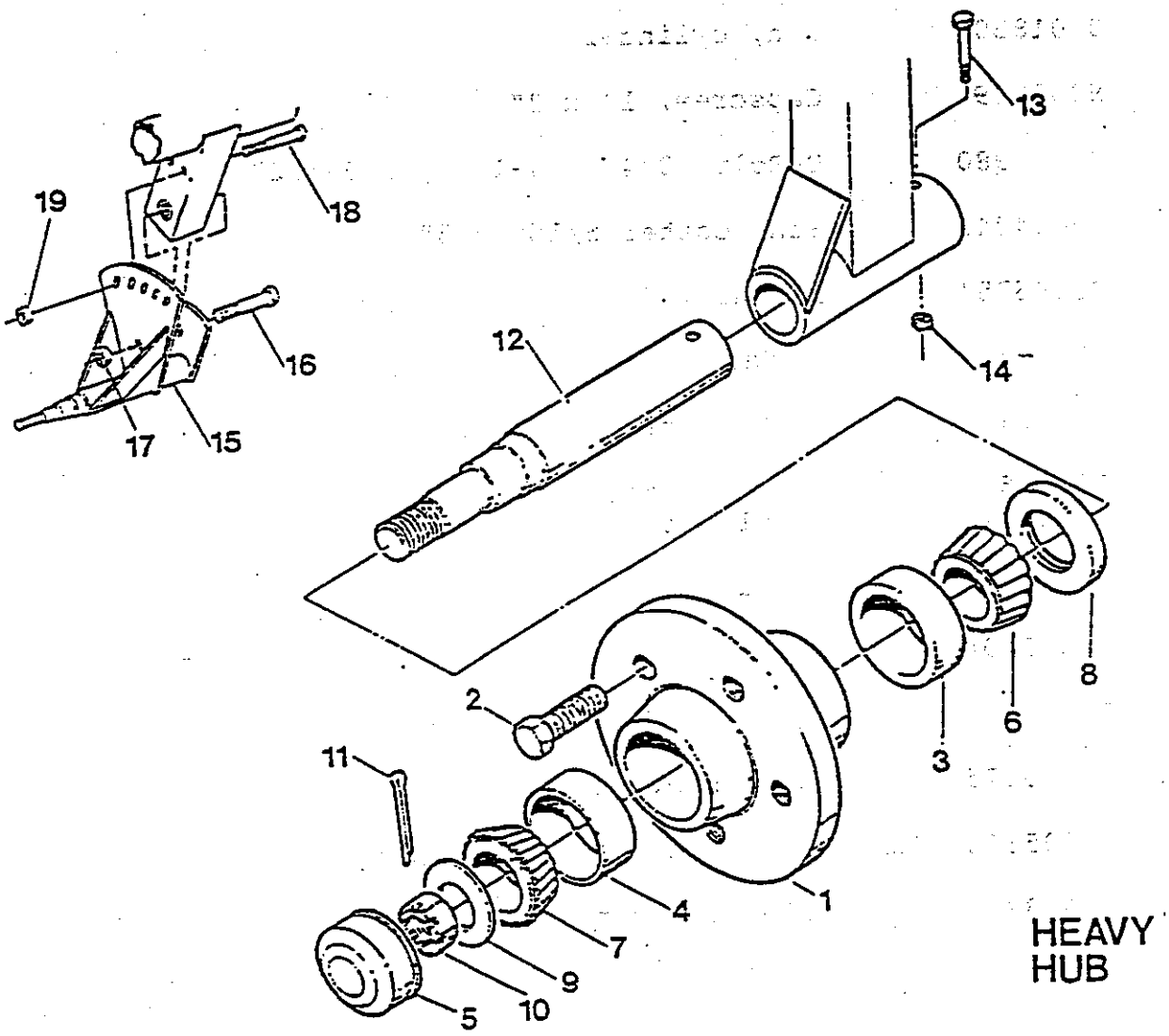
614 HUB AND SPINDLE ASSEMBLY



701465

Heavy Hub and Spindle Assy - Centre Axle

			QUANTITY
1.	N0083154	Hub, 6 stud (includes items 3 & 4)	1
2.	N0083163	Bolt stud, 9/16" x 1-1/4" UNF	6
3.	N0012547	Bearing cup, inner	1
4.	360135V1	Bearing cup, outer	1
5.	N0049101	Dust cap	1
6.	N0012548	Bearing cone, inner	1
7.	360136V1	Bearing cone, outer	1
8.	N0082053	Seal	1
9.	N0012262	Flatwasher, 1" SAE	1
10.	N0001686	Nut, hex slotted, 1" UNF	1
11.	N0012115	Cotterpin, 3/16" x 2"	1
12.	N0904967	Heavy duty replaceable spindle	1
13.	N0012006	Capscrew, 1/2" x 3-1/2"	1
14.	N0012083	Nylock, 1/2"	1
15.	A0040494	Heavy duty adjustable spindle	1
16.	N0018681	Capscrew, 1" x 6-1/2"	1
17.	N0086755	Nylock nut, 1"	1
18.	N0013201	Capscrew, 3/4" x 5-1/2"	1
19.	N0050852	Flange nut, 3/4"	1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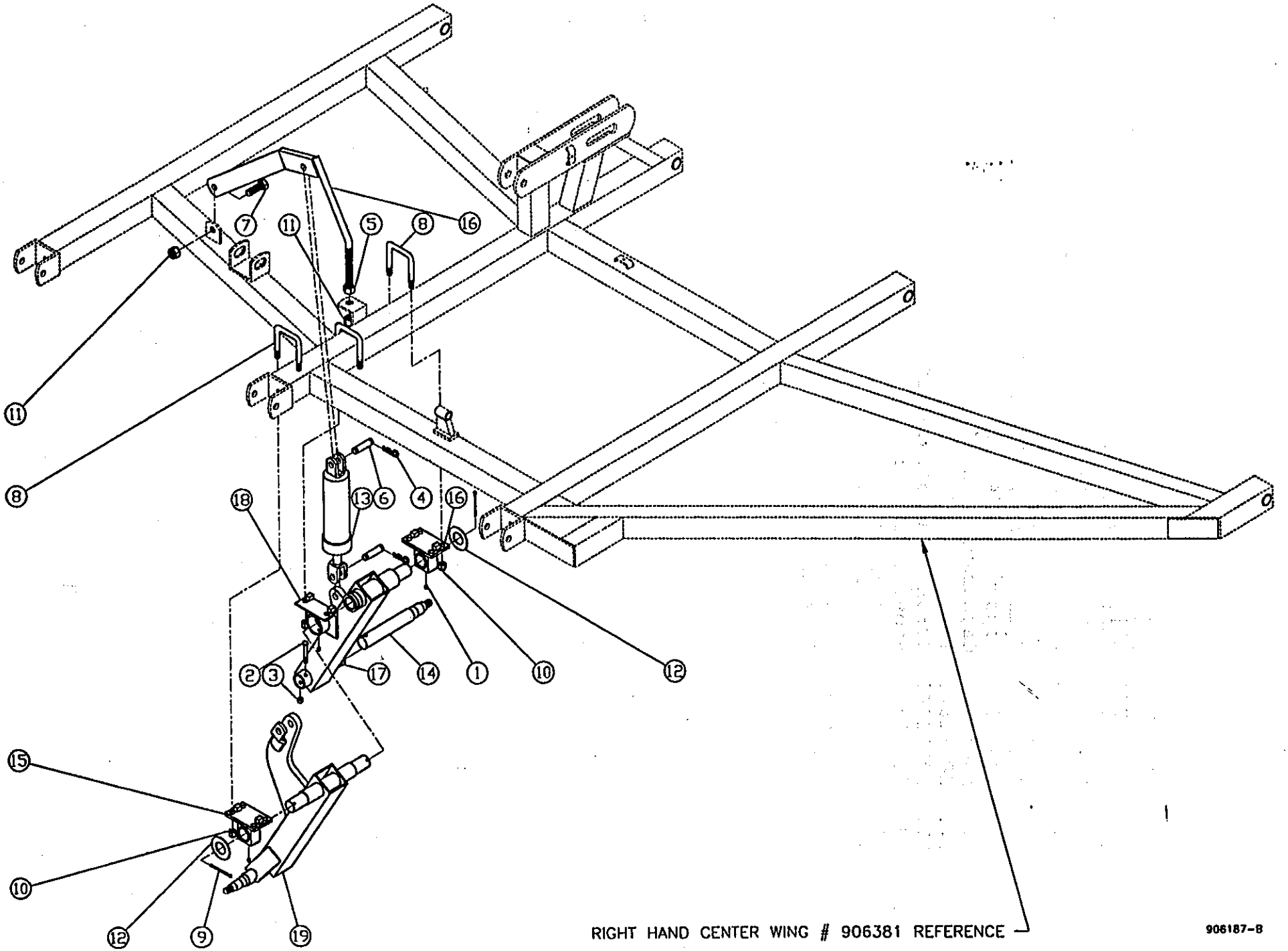
1
HEAVY
HUB

RH CENTER WING TRANSPORT AXLE ASSEMBLY

1.	N0008003	Grease fitting
2.	N0012006	Capscrew, 1/2" x 3 1/2"
3.	N0012083	Locknut, 1/2"
4.	N0012290	Hair pin, 3/16" x 3 9/16"
5.	N0016580	Nut, 1"
6.	00018309	Pin, cylinder
7.	N0050198	Capscrew, 1" x 3"
8.	N0082980	U-Bolt, 3/4" x 4-1/16" x 5-1/2"
9.	N0084045	Pin, cotter 5/16" x 3"
10.	N0086754	Locknut, 3/4"
11.	N0086755	Locknut, 1"
12.	157009	Bushing machinery, 2" heavy
13.	196105 324121	Hyd. cylinder, 3-1/2" x 8" Seal kit
14.	N0904967	Spindle
15.	A0032494	Pivot bracket, axle
16.	A0040594	Adjustor, transport axle
17.	N0905875	Axle, R.H. transport
18.	N0905893	Pivot bracket, transport
19.	906238	Axle R.H. single

R.H. CENTER WING TRANSPORT AXLE ASSEMBLY (11-1/4" SPACING ONLY)

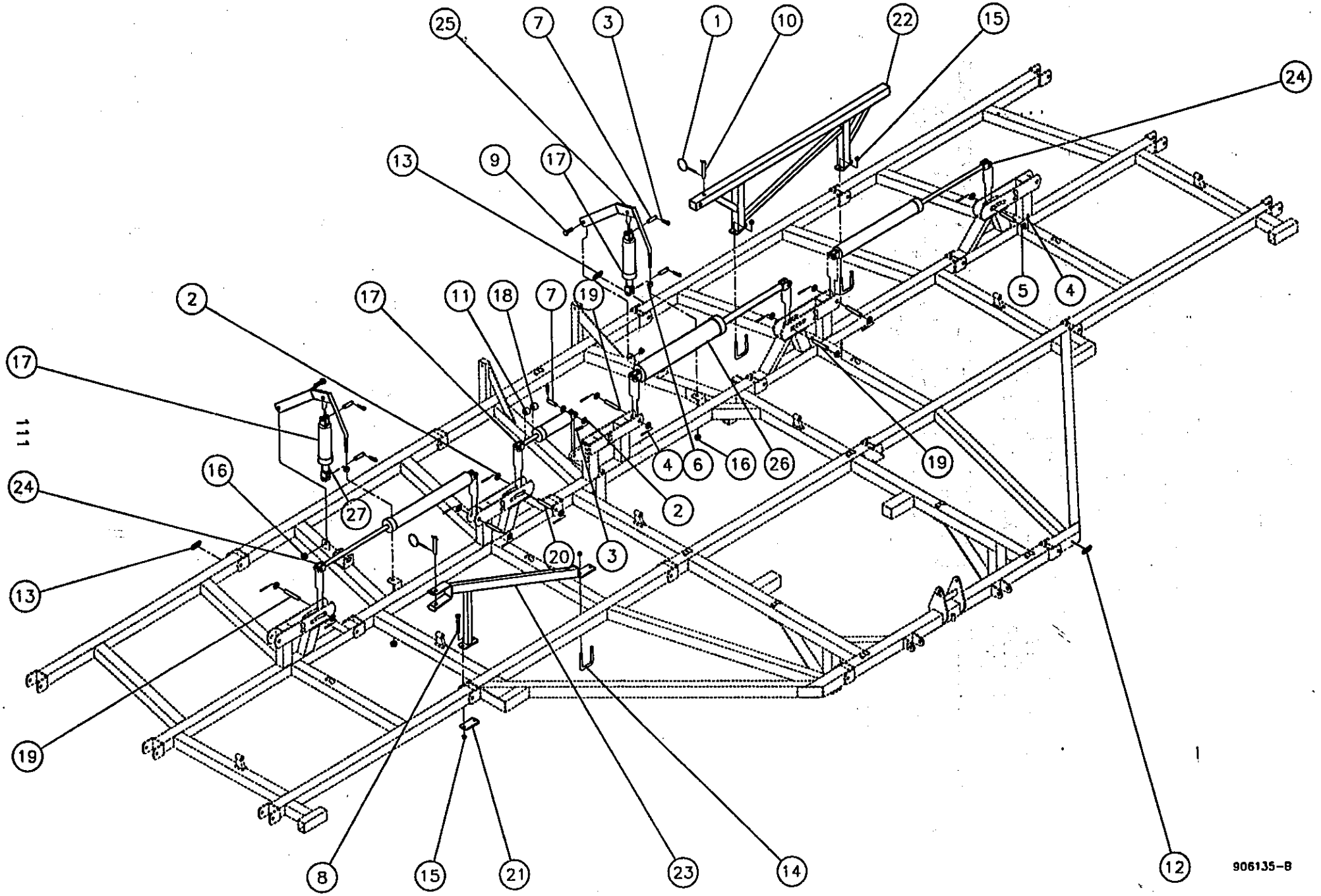


906187-B

WINGLIFT AND TRANSPORT ASSEMBLY - 32.5' & 37.5'

			QUANTITY
1.	N0005575	Klik pin, 1/4" x 1-3/4"	2
2.	N0012262	Flatwasher, 1"	4
3.	N0012290	Hairpin, 3/16" x 3-9/16"	10
4.	N0012479	Cotterpin, 1/4" x 2"	14
5.	N0013569	Flatwasher, 1-1/4"	12
6.	N0016580	Hex nut, 1"	2
7.	00018309	Cylinder pin, 1" x 3.90"	5
8.	N0022890	Capscrew, 3/4" x 6"	2
9.	N0050198	Capscrew, 1" x 3"	2
10.	N0081923	Pin, 1" x 6"	2
11.	N0082062	Stroke control, 1-1/2"	3
12.	N0082308	Amber reflector	2
13.	N0082309	Red reflector	2
14.	N0082980	U-bolt, 3/4" x 4-1/16" x 5-1/2"	3
15.	N0086754	Locknut, 3/4"	8
16.	N0086755	Locknut, 1"	4
17.	196105	Hyd. cylinder, 3-1/2" x 8"	3
	324121	Seal kit	
18.	324114	Stroke control	1
19.	N0903297	Headless slot pin, 1-1/4"	6
20.	N0903298	Headless Slot pin, 1"	1
21.	904483	Retaining Plate	1
22.	A0036394	Double ended wing holdup	1
23.	A0036494	Single ended wing holdup	1
24.	A0040297	Hyd. cylinder, 3-1/2" x 30"	2
	A0053800	Seal kit	
25.	A0040594	Transport axle adjustment	2
26.	A0055397	Hyd. cylinder, 5" x 30"	1
27.	906287	Transport lock collar	2

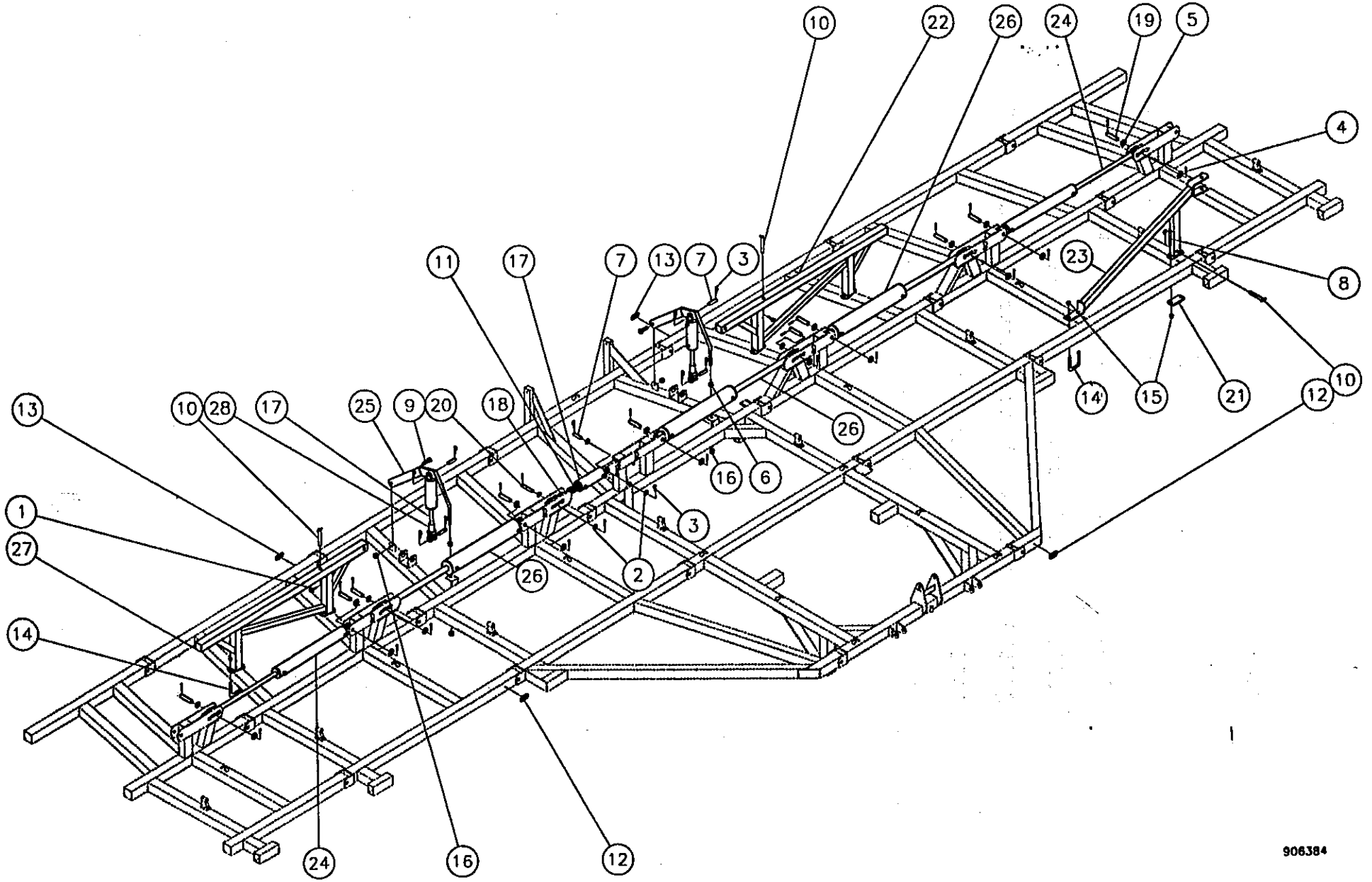
WINGLIFT AND TRANSPORT ASSEMBLY – 32.5' & 37.5'



WINGLIFT AND TRANSPORT ASSEMBLY - 47.5' & 52.5'

			QUANTITY
1.	N0005575	KLIK PIN, 1/4" X 1-3/4"	3
2.	N0012262	FLAT WASHER, 1"	4
3.	N0012290	PIN-HAIR, 3/16" X 3-9/16"	10
4.	N0012479	PIN-COTTER, 1/4" X 2"	22
5.	N0013569	FLAT WASHER, 1-1/4"	20
6.	N0016580	HEX NUT, 1"	2
7.	00018309	CYLINDER PIN, 1" X 3.90"	5
8.	N0022890	CAPSCREW, 3/4" X 6"	2
9.	N0050198	CAPSCREW, 1" X 3"	2
10.	N0081923	PIN, 1" X 6"	3
11.	N0082062	STROKE CONTROL, 1-1/2" WIDE X 1-1/2" SHAFT	3
12.	N0082308	AMBER REFLECTOR DECAL, 2" X 4" ROUND ENDS	2
13.	N0082309	RED REFLECTOR DECAL, 2" X 4" ROUND ENDS	2
14.	N0082980	U-BOLT, 3/4" X 4-1/16" X 5-1/2"	5
15.	N0086754	LOCK NUT, 3/4"	12
16.	N0086755	LOCK NUT, 1"	4
17.	196105	CYLINDER HYDRAULIC, 3-1/2" X 8"	3
	324121	SEAL KIT	
18.	324114	STROKE CONTROL	1
19.	903297	HEADLESS SLOT PIN, 1-1/4"	10
20.	903298	HEADLESS SLOT PIN, 1"	1
21.	904483	RETAINING PLATE	1
22.	A0036394	DOUBLE ENDED WING HOLD-UP **(47.5')**	1
	906061	LONG DOUBLE ENDED HOLD-UP LH **(52.5')**	1
23.	A0036494	SINGLE WING HOLD-UP **(47.5')**	1
	906065	LONG SINGLE WING HOLD-UP **(52.5')**	1
24.	A0040297	CYLINDER HYDRAULIC, 3-1/2" X 30"	2
	A0053800	SEAL KIT	
25.	A0040594	TRANSPORT AXLE ADJUSTMENT	2
26.	A0055397	CYLINDER HYDRAULIC, 5" X 30"	3
27.	906063	DOUBLE ENDED HOLD-UP RH **(47.5')**	1
	906062	LONG DOUBLE ENDED HOLD-UP RH **(52.5')**	1
28.	906287	TRANSPORT LOCK COLLAR	2

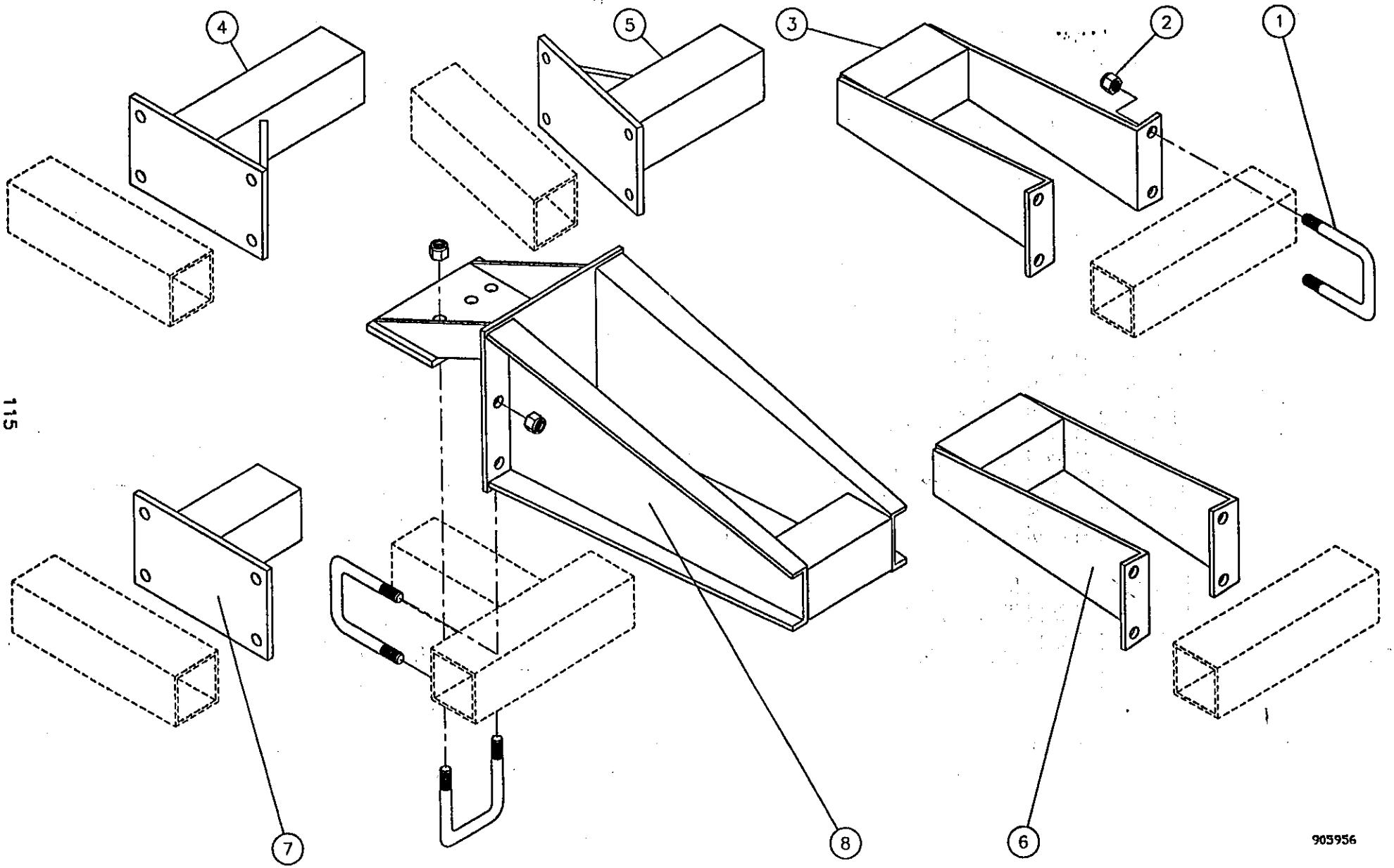
WINGLIFT AND TRANSPORT ASSEMBLY – 47.5' & 52.5'



Shank Setback and Stub Tubes - for 7.5",9",11.25"

1.	N0082980	U-bolt, 3/4 x 4-1/16 x 5-1/2
2.	N0086754	Locknut 3/4 nylon insert
3.	A0037794	Shank setback bracket - 7.5"/9"/11.25"
4.	A0037894	Stub tube bracket - 9"/11.25"
5.	905858	Angle stub tube bracket - 9"/11.25"
6.	905928	Offset shank setback bracket - 7"
7.	905927	Short stub tube bracket - 7"
8.	906153	Shank set-ahead bracket - 11.25"

SHANK SETBACK AND STUB TUBE ASSEMBLIES

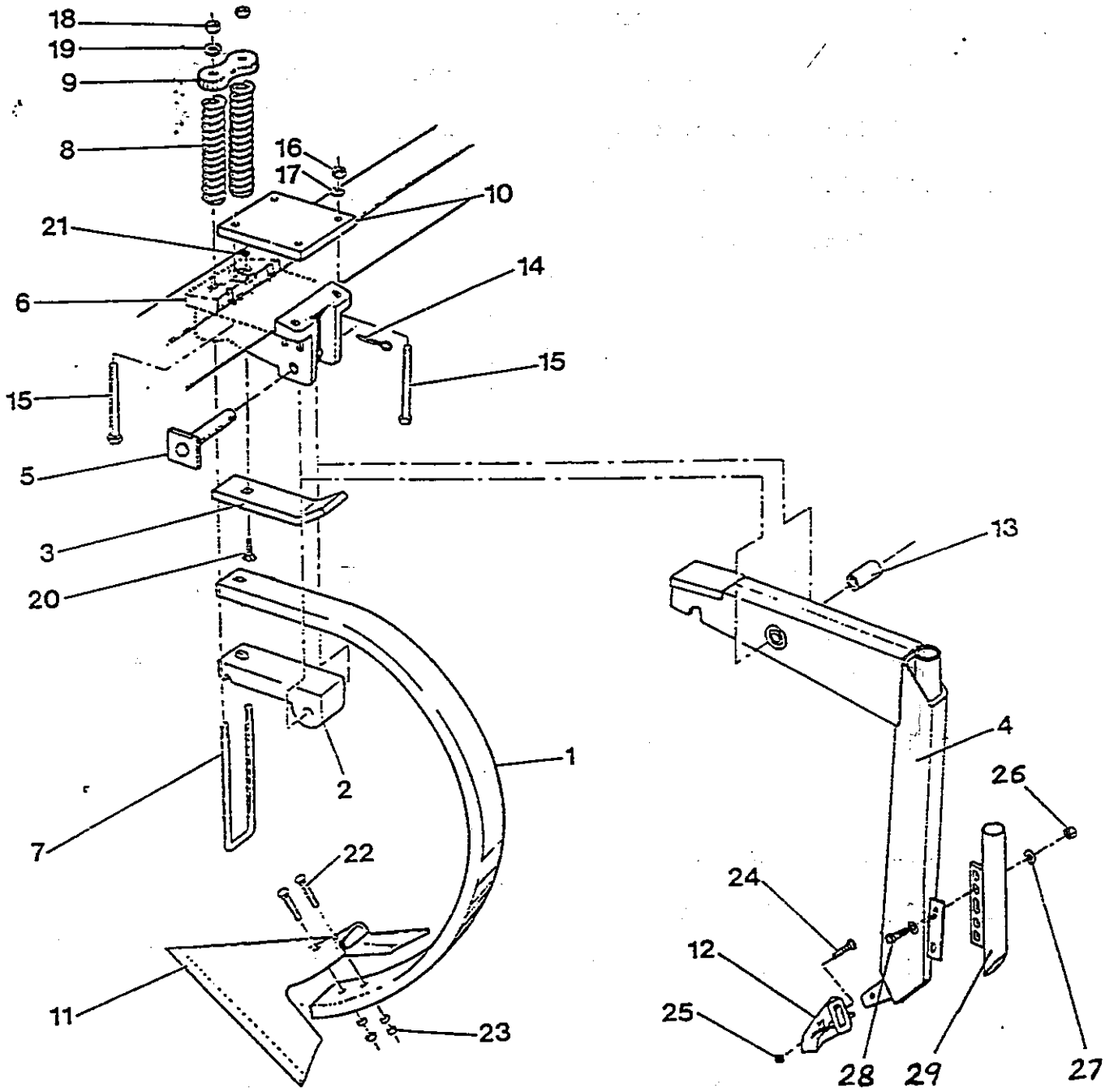


Shank Assemblies

			H.D. C-SHK	M.D. C-SHK	HOE SHK
1.	A0020597	Heavy shank,1-1/4"x2"x28"	1		
	A0039197	Medium shank, 7/8"x2"x28"		1	
2.	00004003	Shank base plate	1	1	
3.	N0905144	Shank spacer		1	
4.	A0043497	Hoe shank (incl.item 13)			1
5.	N0904851	Shank pivot pin	1	1	1
6.	A0020197	Shank holder	1	1	1
7.	A0020697	U-bolt, 17"	1	1	1
8.	A0020797	Spring, heavy-duty	1		
	A0039897	Spring, medium-duty		1	1
9.	A0020897	Dual spring cap	1	1	1
10.	00004005	Clamp plate	1	1	1
11.		Shovel, 50 degree	1	1	
12.	N0099835	Hoe point			1
13.	A0034602	Pivot bushing			1
14.	N0086321	Cotterpin, 5/16" x 2"	1	1	1
15.	N0084009	Capscrew, 5/8" x 6"	4	4	4
16.	N0012112	Hex nut, 5/8"	4	4	4
17.	N0012110	Lockwasher, 5/8"	4	4	4
18.	N0012066	Hex nut, 3/4"	2	2	2
19.	N0012009	Lockwasher, 3/4"	2	2	2
20.	00107392	Plow bolt, 3/8" x 2"		1	
21.	N0012131	Nylock nut, 3/8"		1	
22.	N0084033	Plow bolt, 1/2" x 2-1/4"	2		
		Plow bolt, 1/2" x 2"		2	
23.	N0084066	Heavy hex nut, 1/2"	2	2	
24.	N0100643	Screw,flat hd, 5/16"x 1-1/4"			1
25.	N0016360	Nut, square, 5/16"			1

OPTIONAL DOUBLE SHOOT

26.	N0012131	LOCKNUT, 3/8"	2
27.	N0018603	Flat washer, 3/8"	4
28.	N0012038	Capscrew, 3/8" x 1-1/4"	2
29.	906045	Dry tube	1
	906354	Offset dry tube * **not shown** *	1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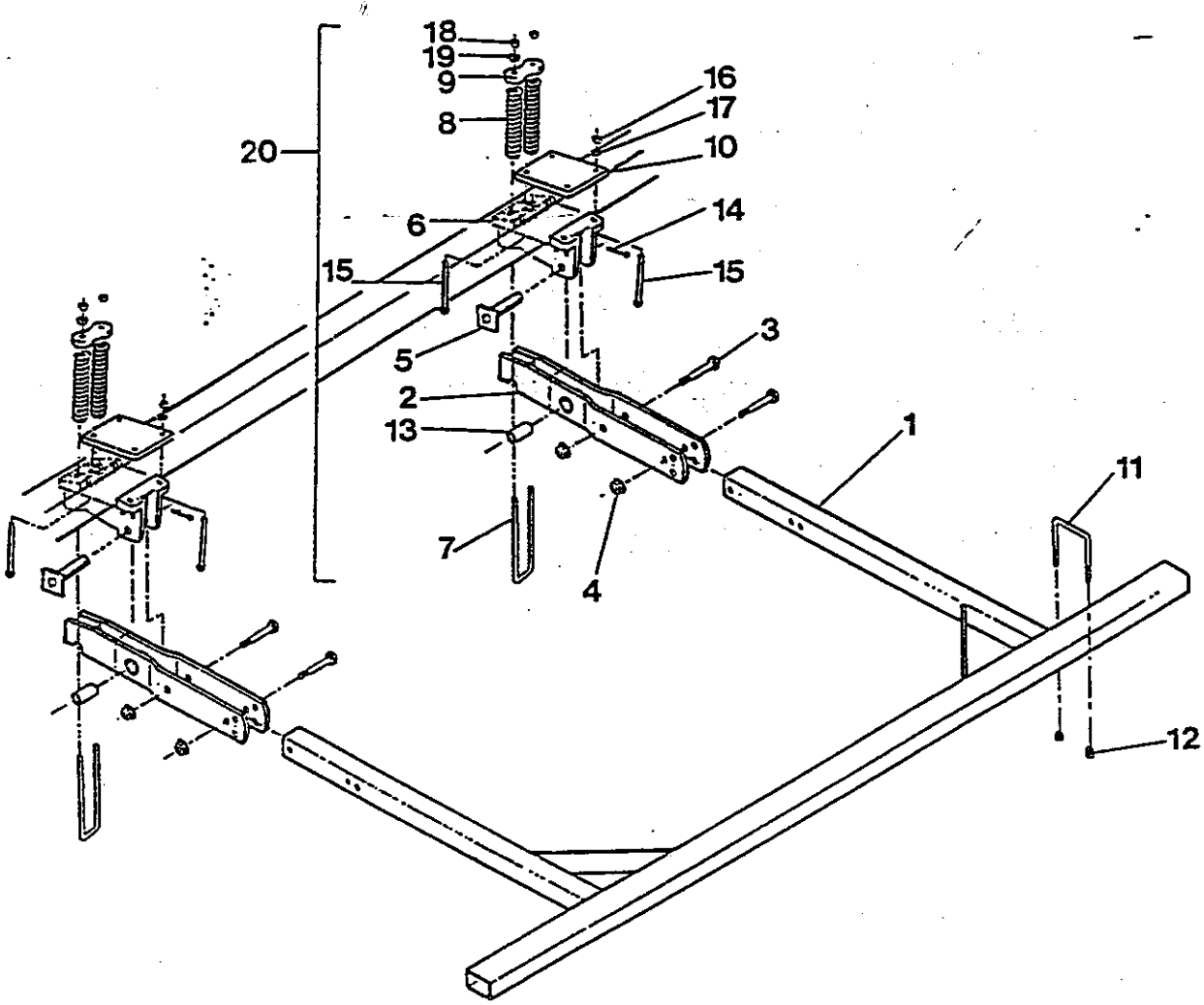
Packer Frame Assembly - 5' & 7.5'

			QUANTITY
1.	A0038897	Packer mount frame 7-1/2'(heavy and medium shank)	1
	905794	Packer mount frame 5' (heavy and medium shank)	1
	906077	Hoe packer frame 7-1/2' (hoe shank)	1
	906078	Hoe packer frame 5' (hoe shank)	1
2.	A0034797	Packer mount pivot bracket (c/w - #13)	2
3.	N0006937	Capscrew 5/8" x 3-1/2"	4
4.	N0050029	Nut serr. flange 5/8"	4
5.	N0904851	Pivot pin	2
6.	A0020197	Shank holder	2
7.	A0020697	U bolt 17"	2
8.	A0039897	Spring med. duty	4
9.	A0020897	Dual spring cap	2
10.	00004005	Clamp plate	2
11.	N0100460	U bolt 1/2" x 3-1/16" x 3-1/2"	4
12.	N0012083	Locknut 1/2" nylon insert	8
13.	A0034602	Pivot bushing	2
14.	N0086321	Cotter pin 5/16" x 2"	2
15.	N0084009	Capscrew 5/8" x 6"	8
16.	N0012112	Hex nut 5/8"	8
17.	N0012110	Lockwasher 5/8"	8
18.	N0012066	Hex nut 3/4"	4
19.	N0012009	Lockwasher 3/4"	4
20.	A0038997	Packer holder ass'y (c/w #'s 2,5-10,13-19)	REF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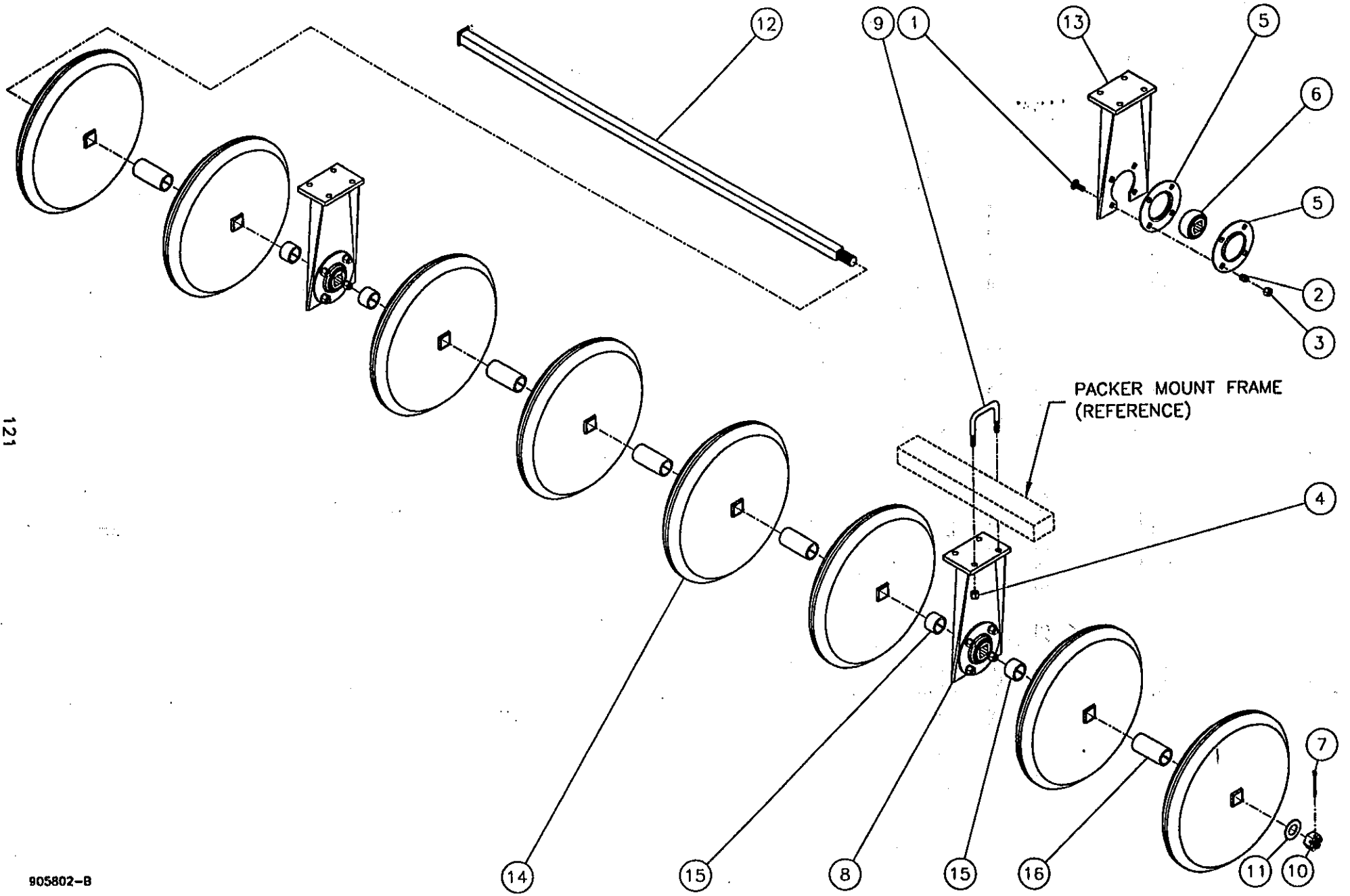
PACKER ASSEMBLY - 7-1/2" SPACING ON 5' FRAME (905802-B)

			QUANTITY
1.	N0006882	CARRIAGE BOLT, 1/2" X 1-1/4"	8
2.	N0012007	LOCK WASHER, 1/2"	8
3.	N0012075	HEX NUT, 1/2"	8
4.	N0012083	LOCK NUT, 1/2"	8
5.	N0013300	FLANGE	4
6.	N0083215	1-1/8" SQUARE HOLE BEARING	2
7.	N0084700	PIN-COTTER, 3/16" X 2-1/2"	1
8.	N0098551	STANDARD ASSEMBLY, STUBBLE TREADER *INCLUDES ITEMS #1, 2, 3, 5, 6, & 13	2
9.	N0100460	U-BOLT, 1/2" X 3-1/16" X 3-1/2"	4
10.	N0100461	SLOTTED NUT, 1-1/8"	1
11.	00109002	FLAT WASHER, 1-1/8"	1
12.	905798	GANG BOLT, 1-1/8" SQUARE X 56.85"	1
13.	905914	STANDARD-BEARING MOUNT BRACKET	2
14.	906337	PACKER WHEEL, 18" PLAIN	8
	906349	PACKER WHEEL, 20" RUBBER * **NOT SHOWN** *	8
		*SEE ITEM # 3. PAGE 134 & 135 FOR BREAKDOWN	
15.	906340	SPACER, 1.28" X 1-1/8" SQUARE	4
16.	906342	SPACER, 4.00" X 1-1/8" SQUARE	5

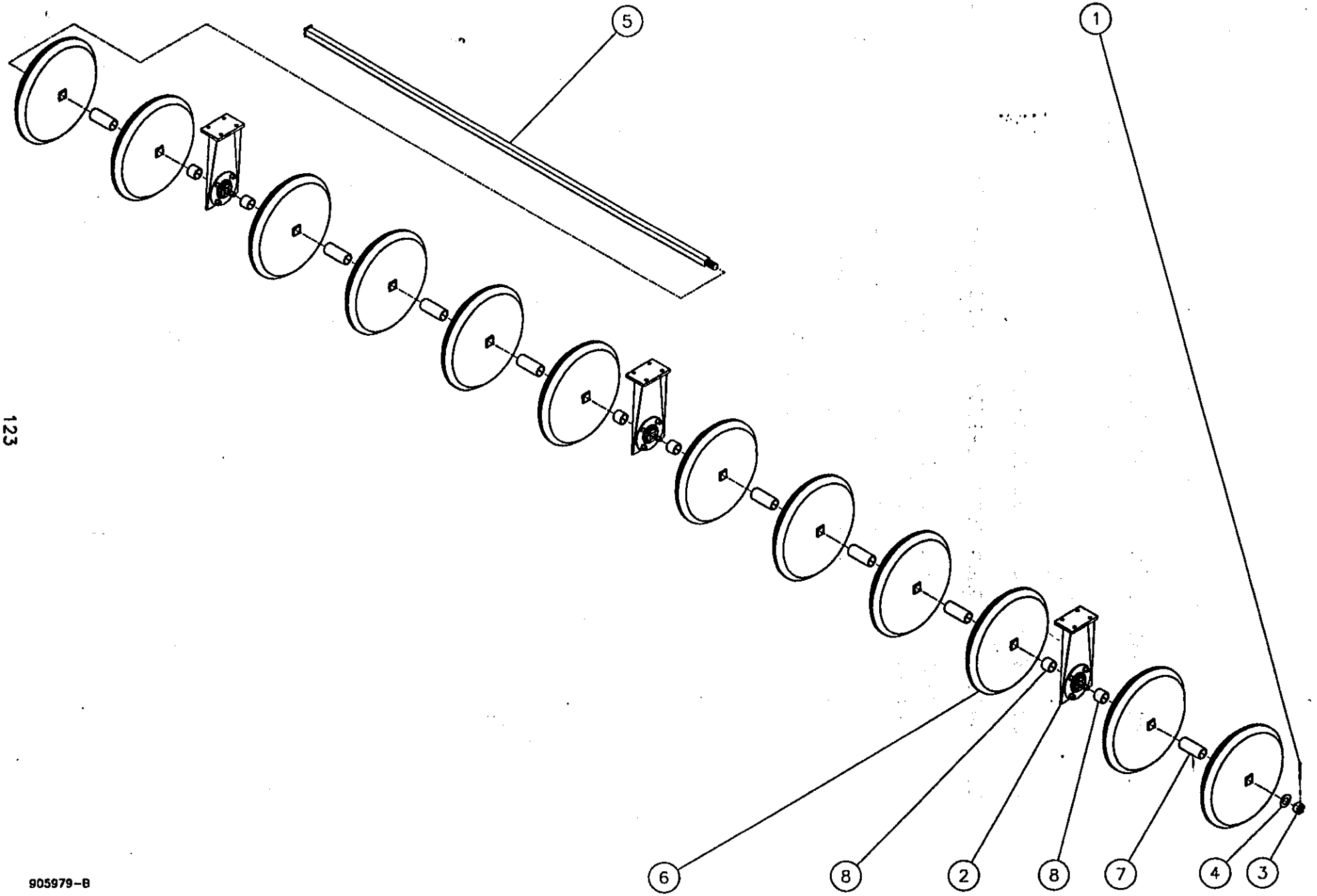
PACKER WHEEL ASSEMBLY – 7-1/2" SPACING ON 5' FRAME



PACKER ASSEMBLY - 8" SPACING ON CENTER FRAME (905979-B)

			QUANTITY
1.	N0084700	PIN-COTTER, 3/16" X 2-1/2"	1
2.	N0098551	STANDARD ASSEMBLY, STUBBLE TREADER *SEE ITEM # 8. PAGE 120 & 121 FOR BREAKDOWN	3
3.	N0100461	SLOTTED NUT, 1-1/8"	1
4.	00109002	FLAT WASHER, 1-1/8"	1
5.	905981	GANG BOLT, 1-1/8" SQUARE X 92.36"	1
6.	906337	PACKER WHEEL, 18" PLAIN	12
	906349	PACKER WHEEL, 20" RUBBER * **NOT SHOWN** *	12
		*SEE ITEM # 3. PAGE 134 & 135 FOR BREAKDOWN	
7.	906344	SPACER, 4.50 X 1-1/8" SQUARE	8
8.	906345	SPACER, 1.53" X 1-1/8" SQUARE	6

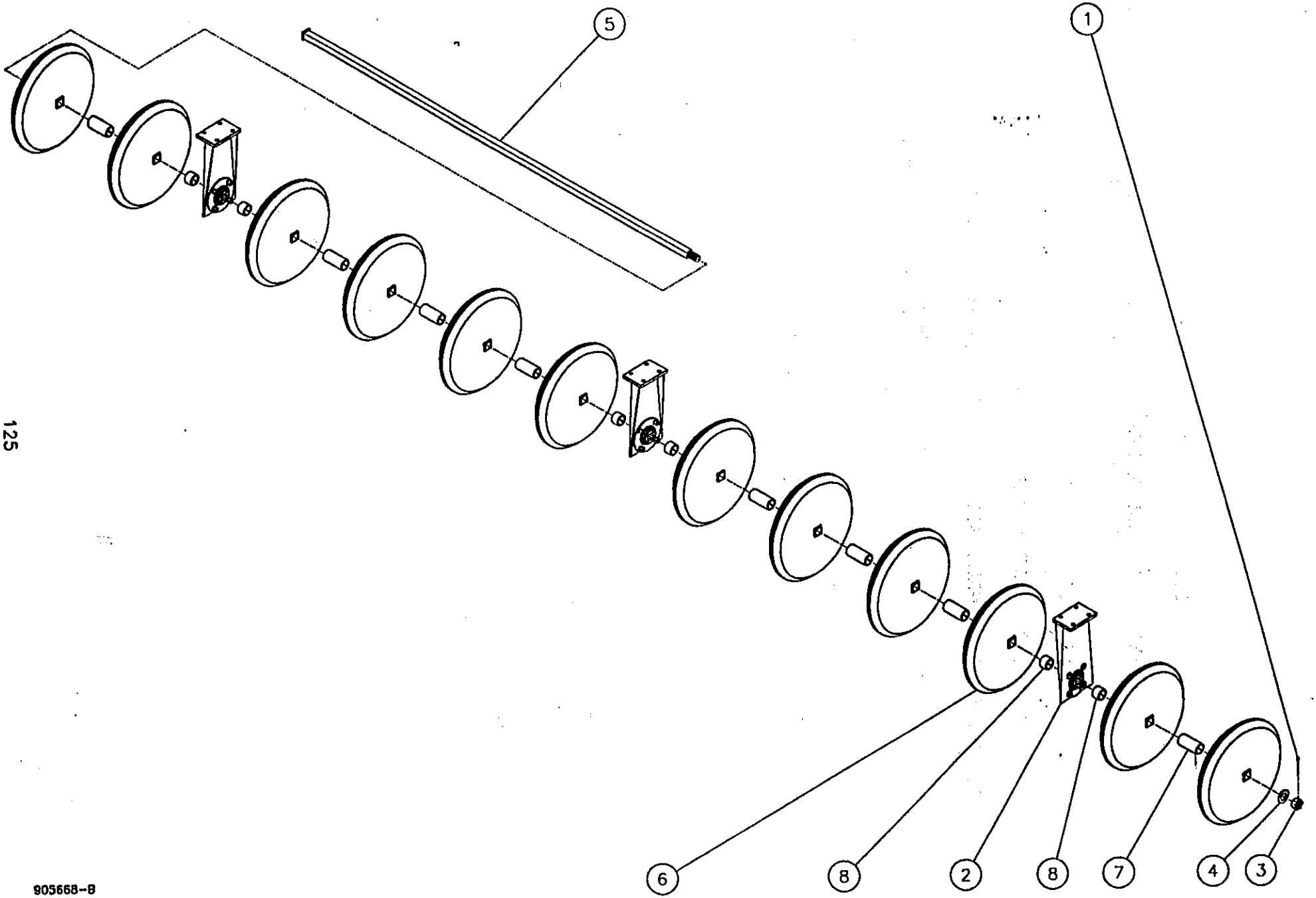
PACKER WHEEL ASSEMBLY – 8" SPACING ON CENTER FRAME



PACKER ASSEMBLY - 7-1/2" SPACING ON 7-1/2' FRAME (905668-B)

			QUANTITY
1.	N0084700	PIN-COTTER, 3/16" X 2-1/2"	1
2.	N0098551	STANDARD ASSEMBLY, STUBBLE TREADER *SEE ITEM # 8. PAGE 120 & 121 FOR BREAKDOWN	3
3.	N0100461	SLOTTED NUT, 1-1/8"	1
4.	00109002	FLAT WASHER, 1-1/8"	1
5.	905811	GANG BOLT, 1-1/8" SQUARE X 86.93"	1
6.	906337	PACKER WHEEL, 18" PLAIN	12
	906349	PACKER WHEEL, 20" RUBBER * **NOT SHOWN** * *SEE ITEM # 3. PAGE 134 & 135 FOR BREAKDOWN	12
7.	906340	SPACER, 1.28" X 1-1/8" SQUARE	6
8.	906342	SPACER, 4.00" X 1-1/8" SQUARE	8

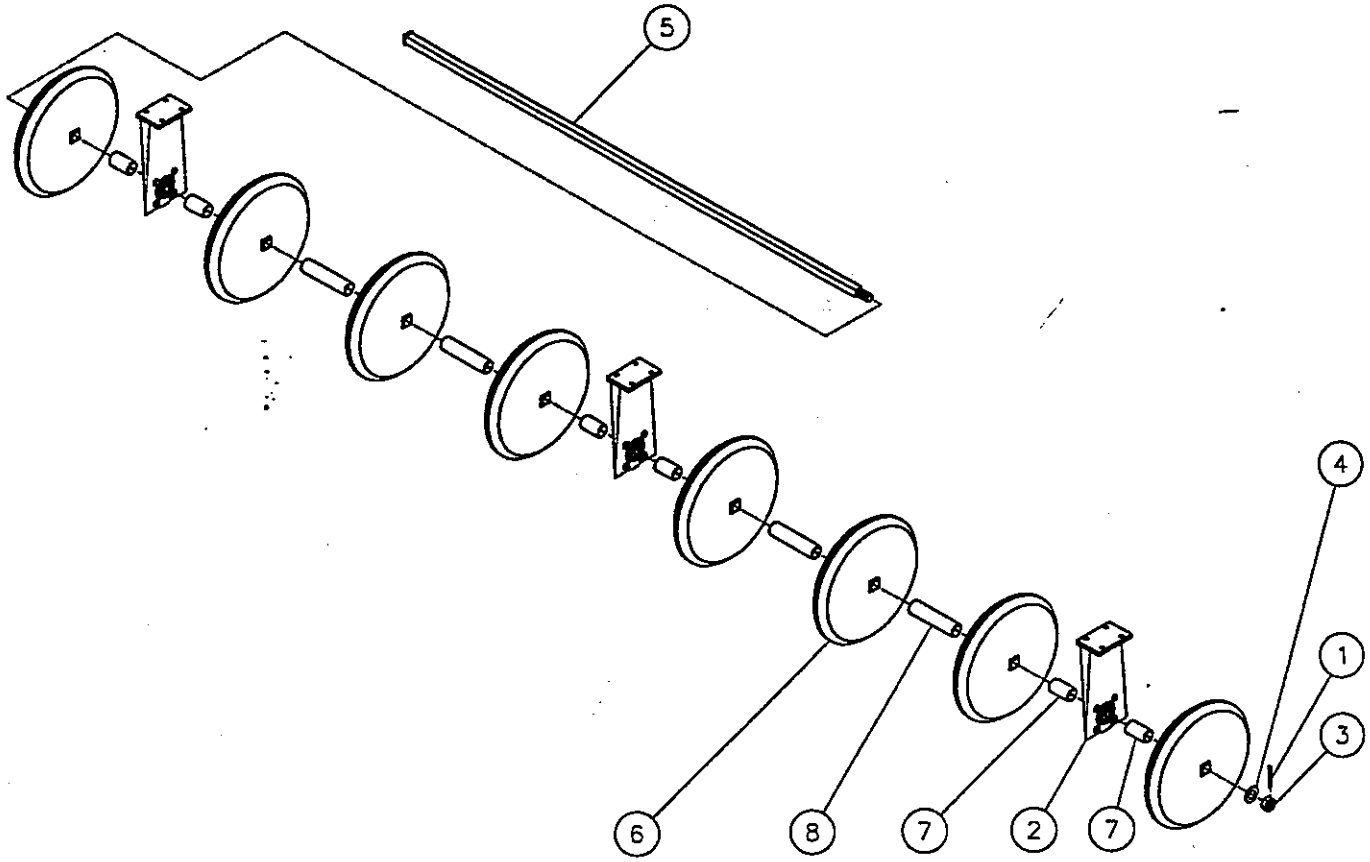
PACKER WHEEL ASSEMBLY – 7–1/2" SPACING ON 7–1/2' FRAME



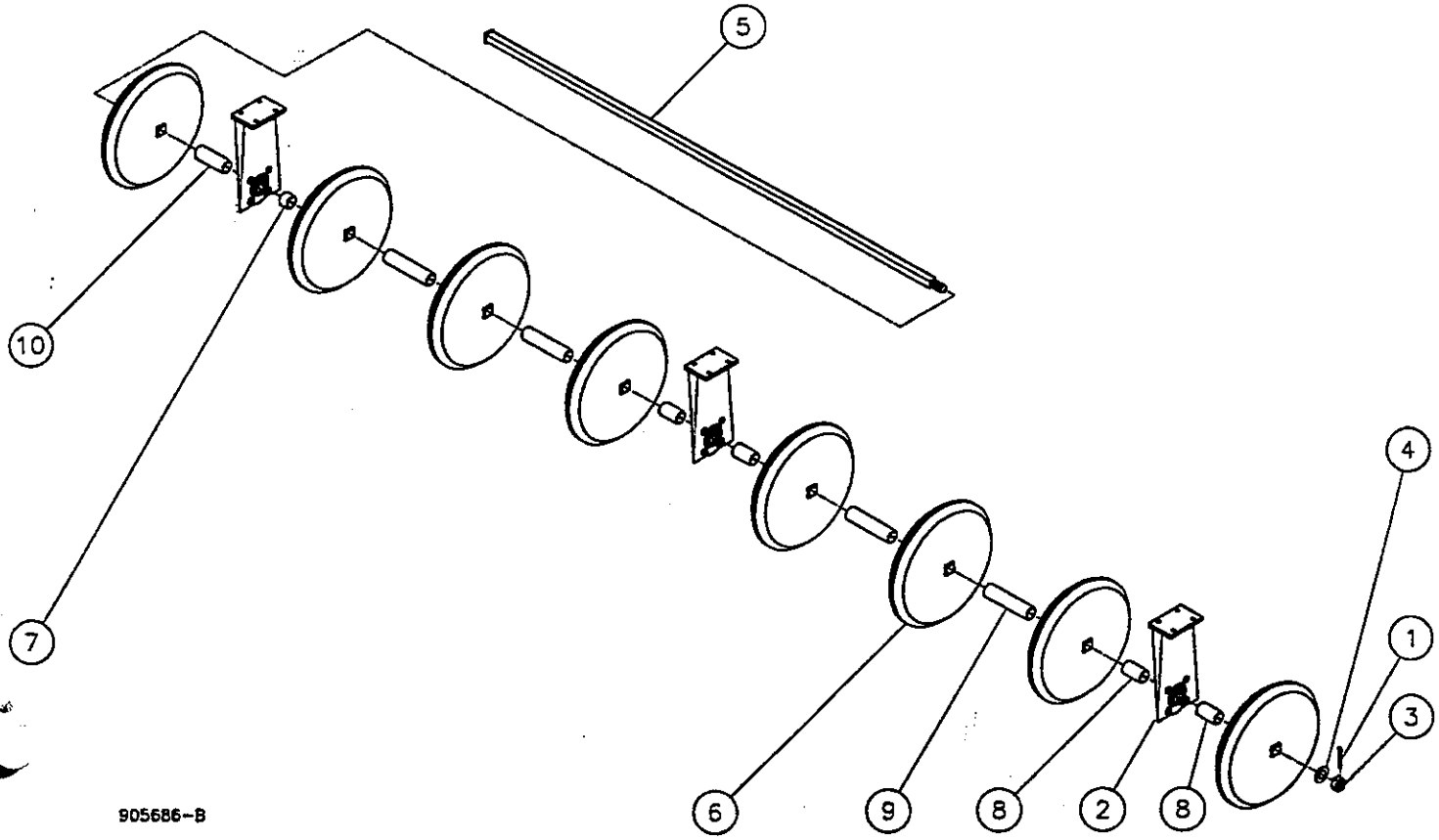
PACKER ASSEMBLY - 9" SPACING ON 5' FRAME (905803-B)

			QUANTITY
1.	N0084700	PIN-COTTER, 3/16" X 2-1/2"	1
2.	N0098551	STANDARD ASSEMBLY, STUBBLE TREADER *SEE ITEM # 8. PAGE 120 & 121 FOR BREAKDOWN	2
3.	N0100461	SLOTTED NUT, 1-1/8"	1
4.	00109002	FLAT WASHER, 1-1/8"	1
5.	905800	GANG BOLT, 1-1/8" SQUARE X 58.27"	1
6.	906337 906349	PACKER WHEEL, 18" PLAIN PACKER WHEEL, 20" RUBBER * **NOT SHOWN** * *SEE ITEM # 3. PAGE 134 & 135 FOR BREAKDOWN	7 7
7.	906338	SPACER, 5.50" X 1-1/8" SQUARE	4
8.	906339	SPACER, 2.03" X 1-1/8" SQUARE	4

PACKER WHEEL ASSEMBLY – 11–1/4" SPACING ON CENTER FRAME



PACKER WHEEL ASSEMBLY – 11–1/4" SPACING ON 7–1/2FT FRAME

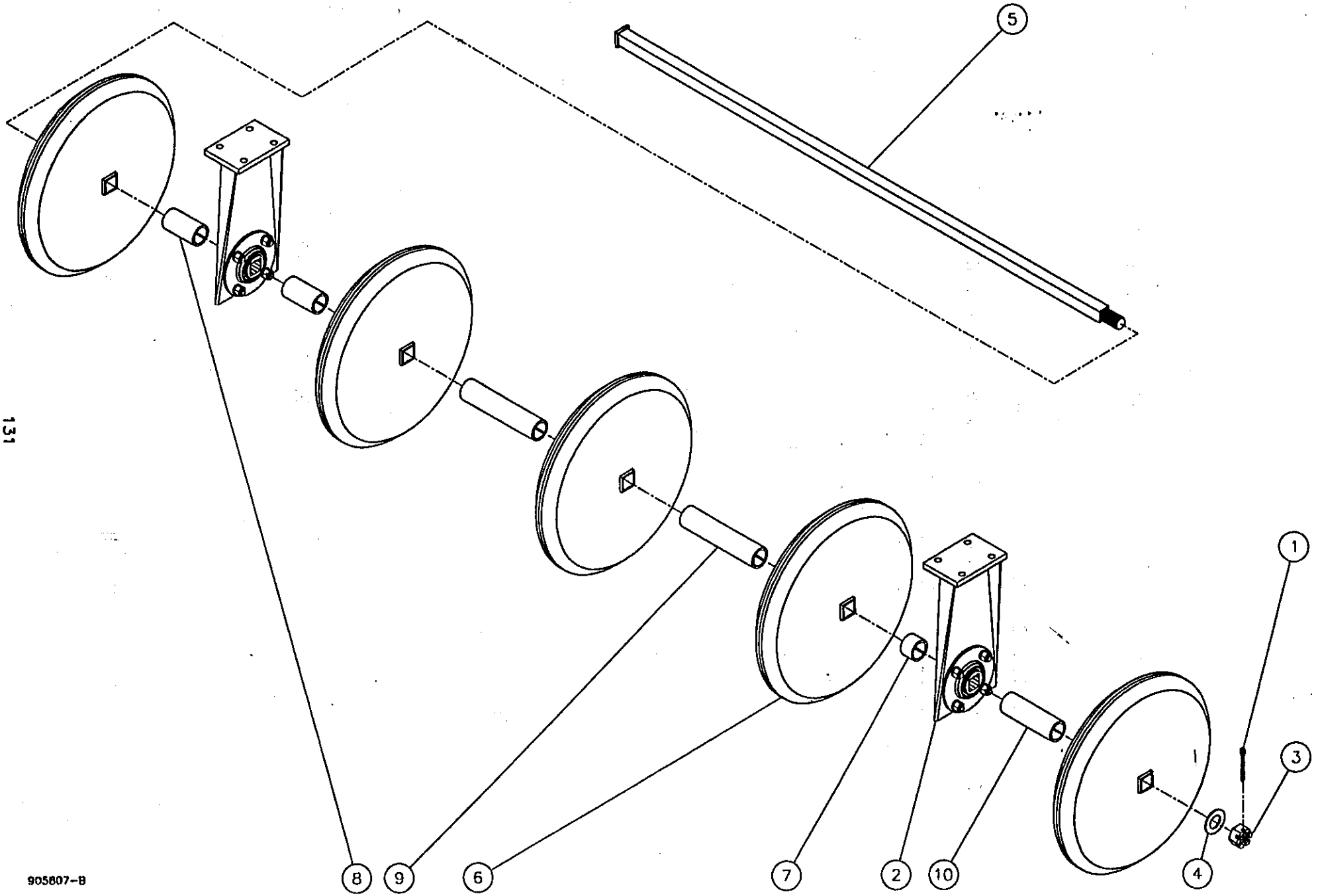


905686–B

RUBBER PACKER ASSEMBLY - 20" DIAMETER (906349)

			QUANTITY
1.	905982	TIRE - 2" X 20" SMOOTH CROWN, PACKER	1
2.	906348	RIM, PACKER WHEEL, 20" RUBBER	1
3.	906349	PACKER WHEEL, 20" RUBBER *INCLUDES ITEMS # 1 AND 2	1

PACKER WHEEL ASSEMBLY – 12" SPACING ON 5' FRAME



905807-B

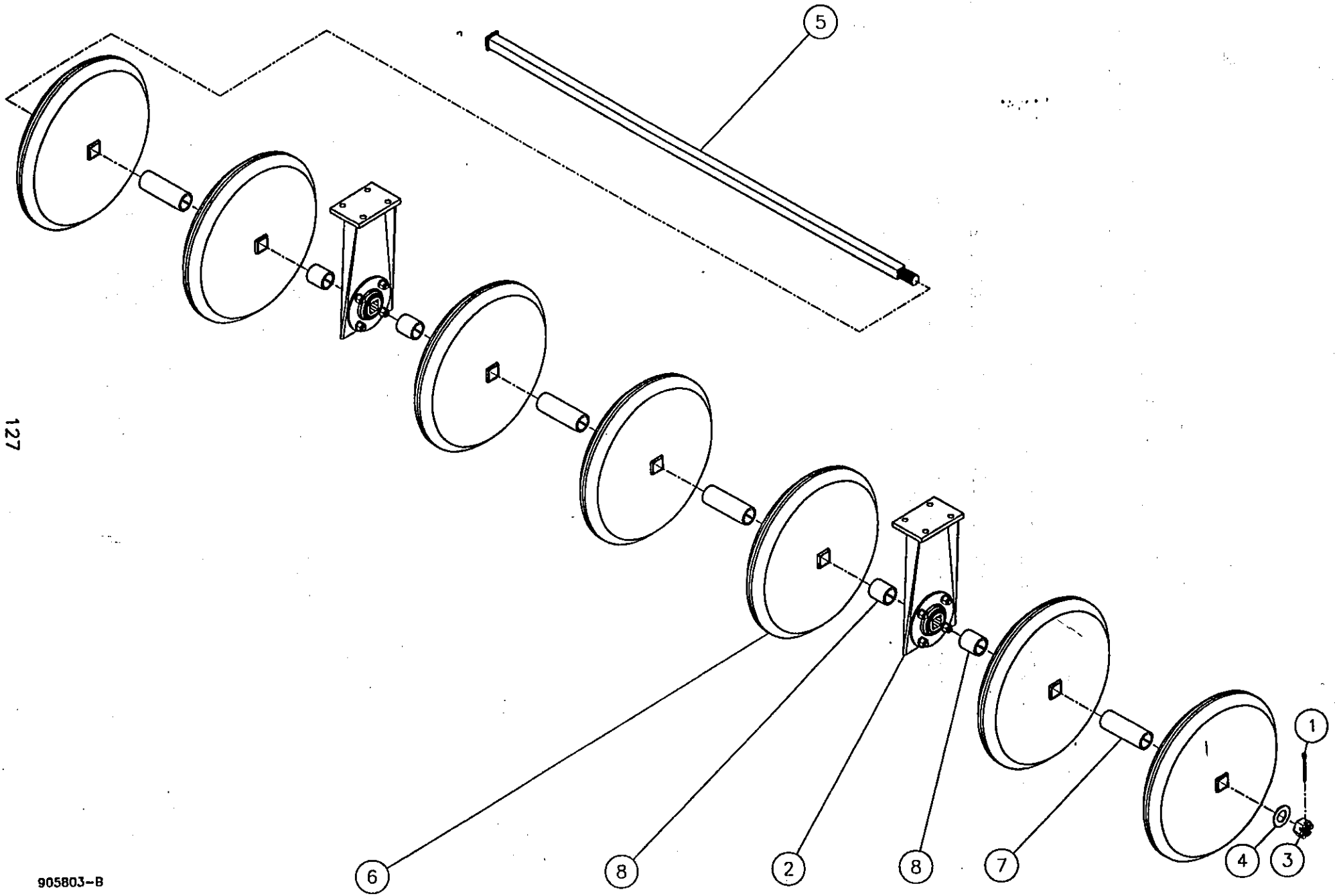
PACKER ASSEMBLY - 11-1/4" SPACING ON CENTER FRAME (905686-B)

			QUANTITY
1.	N0084700	PIN-COTTER, 3/16" X 2-1/2"	1
2.	N0098551	STANDARD ASSEMBLY, STUBBLE TREADER *SEE ITEM # 8. PAGE 120 & 121 FOR BREAKDOWN	3
3.	N0100461	SLOTTED NUT, 1-1/8"	1
4.	00109002	FLAT WASHER, 1-1/8"	1
5.	905685	GANG BOLT, 1-1/8" SQUARE X 83.07"	1
6.	906337	PACKER WHEEL, 18" PLAIN	8
	906349	PACKER WHEEL, 20" RUBBER * **NOT SHOWN** *	8
		*SEE ITEM # 3. PAGE 134 & 135 FOR BREAKDOWN	
7.	906341	SPACER, 3.16" X 1-1/8" SQUARE	6
8.	906343	SPACER, 7.75" X 1-1/8" SQUARE	4

PACKER ASSEMBLY - 11-1/4" SPACING ON 7-1/2' FRAME (905686-B)

			QUANTITY
1.	N0084700	PIN-COTTER, 3/16" X 2-1/2"	1
2.	N0098551	STANDARD ASSEMBLY, STUBBLE TREADER *SEE ITEM # 8. PAGE 120 & 121 FOR BREAKDOWN	3
3.	N0100461	SLOTTED NUT, 1-1/8"	1
4.	00109002	FLAT WASHER, 1-1/8"	1
5.	905685	GANG BOLT, 1-1/8" SQUARE X 83.07"	1
6.	906337	PACKER WHEEL, 18" PLAIN	8
	906349	PACKER WHEEL, 20" RUBBER * **NOT SHOWN** *	8
		*SEE ITEM # 3. PAGE 134 & 135 FOR BREAKDOWN	
7.	906340	SPACER, 1.28" X 1-1/8" SQUARE	1
8.	906341	SPACER, 3.16" X 1-1/8" SQUARE	4
9.	906343	SPACER, 7.75" X 1-1/8" SQUARE	4
10.	906365	SPACER, 5.03" X 1-1/8" SQUARE	1

PACKER WHEEL ASSEMBLY – 9" SPACING ON 5' FRAME



905803-B

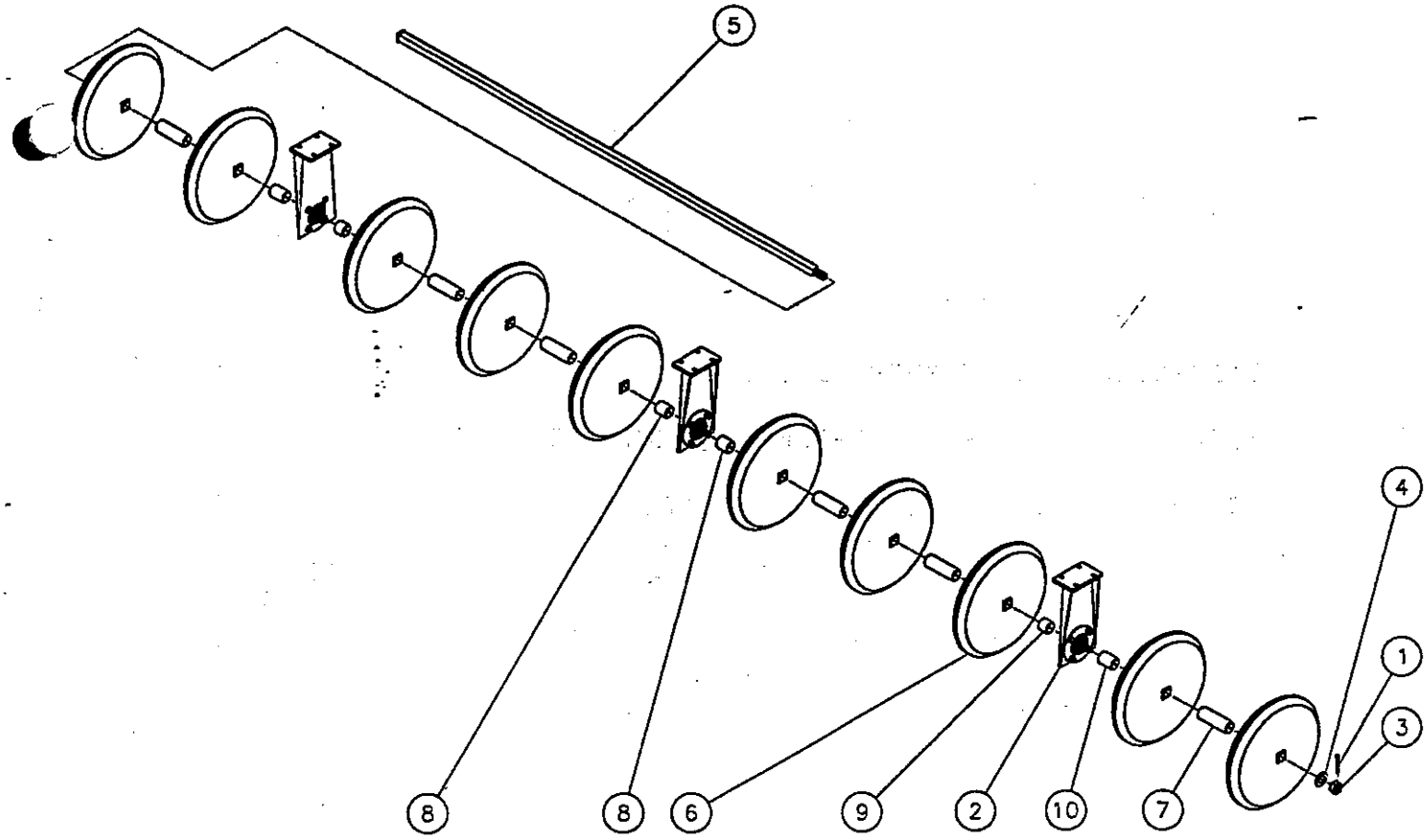
PACKER ASSEMBLY - 9" SPACING ON CENTER FRAME (905387-B)

			QUANTITY
1.	N0084700	PIN-COTTER, 3/16" X 2-1/2"	1
2.	N0098551	STANDARD ASSEMBLY, STUBBLE TREADER *SEE ITEM # 8. PAGE 120 & 121 FOR BREAKDOWN	3
3.	N0100461	SLOTTED NUT, 1-1/8"	1
4.	00109002	FLAT WASHER, 1-1/8"	1
5.	905299	GANG BOLT, 1-1/8" SQUARE X 85.20"	1
6.	906337 906349	PACKER WHEEL, 18" PLAIN PACKER WHEEL, 20" RUBBER * **NOT SHOWN** * *SEE ITEM # 3. PAGE 134 & 135 FOR BREAKDOWN	10 10
7.	906338	SPACER, 5.50" X 1-1/8" SQUARE	6
8.	906339	SPACER, 2.03" X 1-1/8" SQUARE	2
9.	906345	SPACER, 1.53" X 1-1/8" SQUARE	2
10.	906362	SPACER, 2.53" X 1-1/8" SQUARE	2

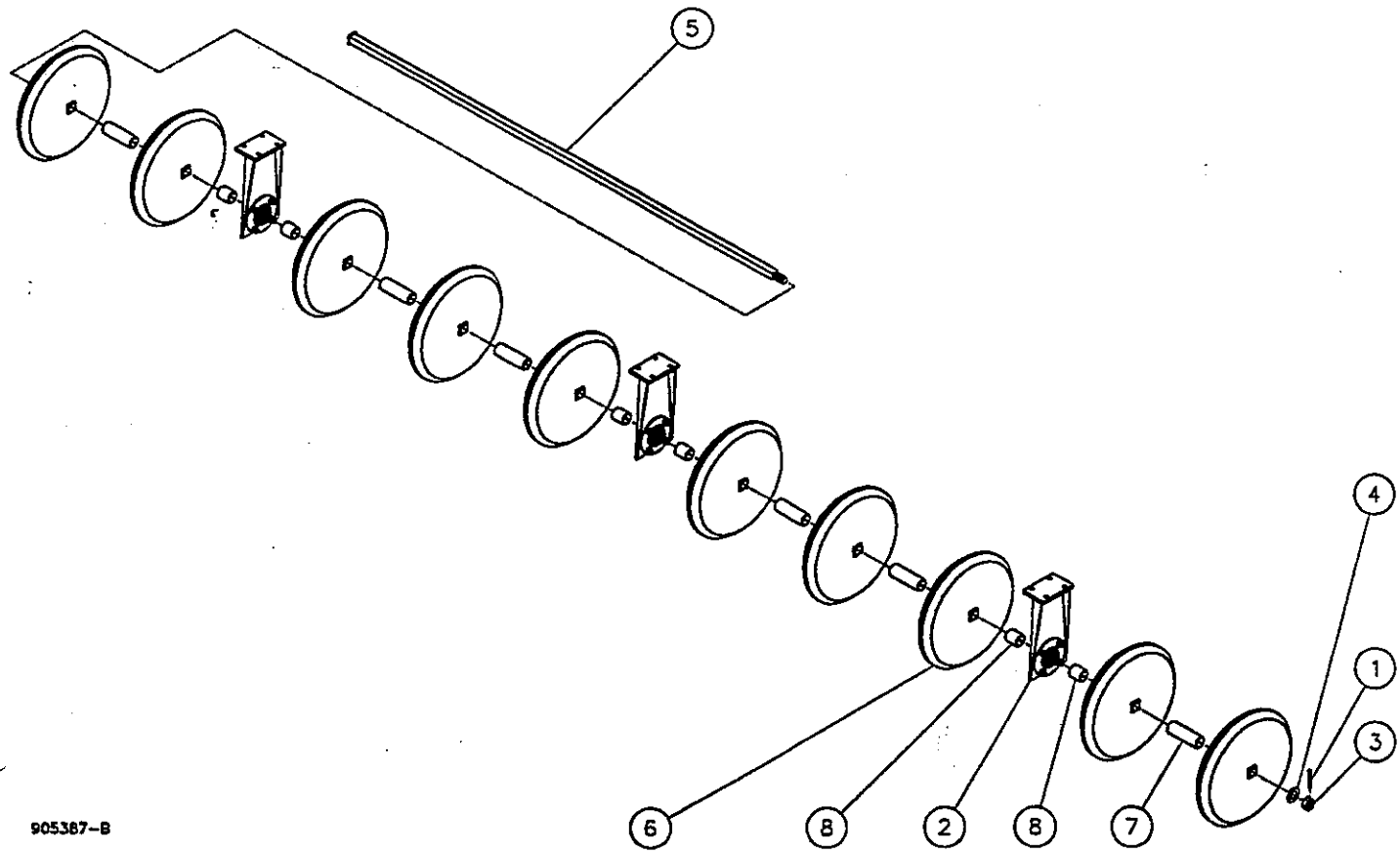
PACKER ASSEMBLY - 9" SPACING ON 7-1/2' FRAME (905387-B)

			QUANTITY
1.	N0084700	PIN-COTTER, 3/16" X 2-1/2"	1
2.	N0098551	STANDARD ASSEMBLY, STUBBLE TREADER *SEE ITEM # 8. PAGE 120 & 121 FOR BREAKDOWN	3
3.	N0100461	SLOTTED NUT, 1-1/8"	1
4.	00109002	FLAT WASHER, 1-1/8"	1
5.	905299	GANG BOLT, 1-1/8" SQUARE X 85.20"	1
6.	906337 906349	PACKER WHEEL, 18" PLAIN PACKER WHEEL, 20" RUBBER * **NOT SHOWN** * *SEE ITEM # 3. PAGE 134 & 135 FOR BREAKDOWN	10 10
7.	906338	SPACER, 5.50" X 1-1/8" SQUARE	6
8.	906339	SPACER, 2.03" X 1-1/8" SQUARE	6

PACKER WHEEL ASSEMBLY – 9" SPACING ON CENTER FRAME



PACKER WHEEL ASSEMBLY – 9" SPACING ON 7–1/2FT FRAME

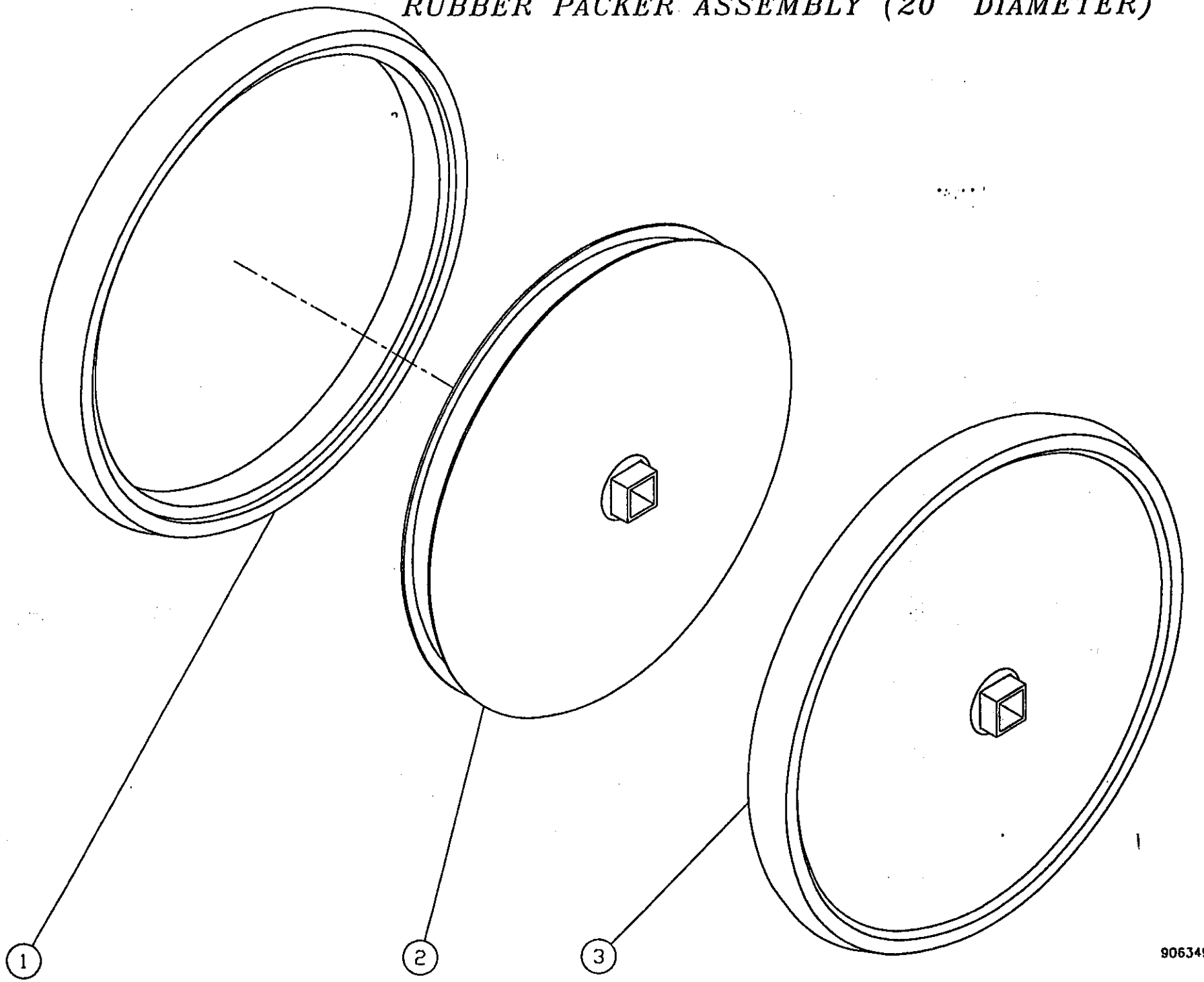


905387–B

PACKER ASSEMBLY - 12" SPACING ON 5' FRAME (905807-B)

			QUANTITY
1.	N0084700	PIN-COTTER, 3/16" X 2-1/2"	1
2.	N0098551	STANDARD ASSEMBLY, STUBBLE TREADER *SEE ITEM # 8. PAGE 120 & 121 FOR BREAKDOWN	2
3.	N0100461	SLOTTED NUT, 1-1/8"	1
4.	00109002	FLAT WASHER, 1-1/8"	1
5.	905806	GANG BOLT, 1-1/8" SQUARE X 52.17"	1
6.	906337	PACKER WHEEL, 18" PLAIN	5
	906349	PACKER WHEEL, 20" RUBBER * **NOT SHOWN** *	5
		*SEE ITEM # 3. PAGE 134 & 135 FOR BREAKDOWN	
7.	906340	SPACER, 1.28" X 1-1/8" SQUARE	1
8.	906346	SPACER, 3.53" X 1-1/8" SQUARE	2
9.	906347	SPACER, 8.50" X 1-1/8" SQUARE	2
10.	906366	SPACER, 5.78" X 1-1/8" SQUARE	1

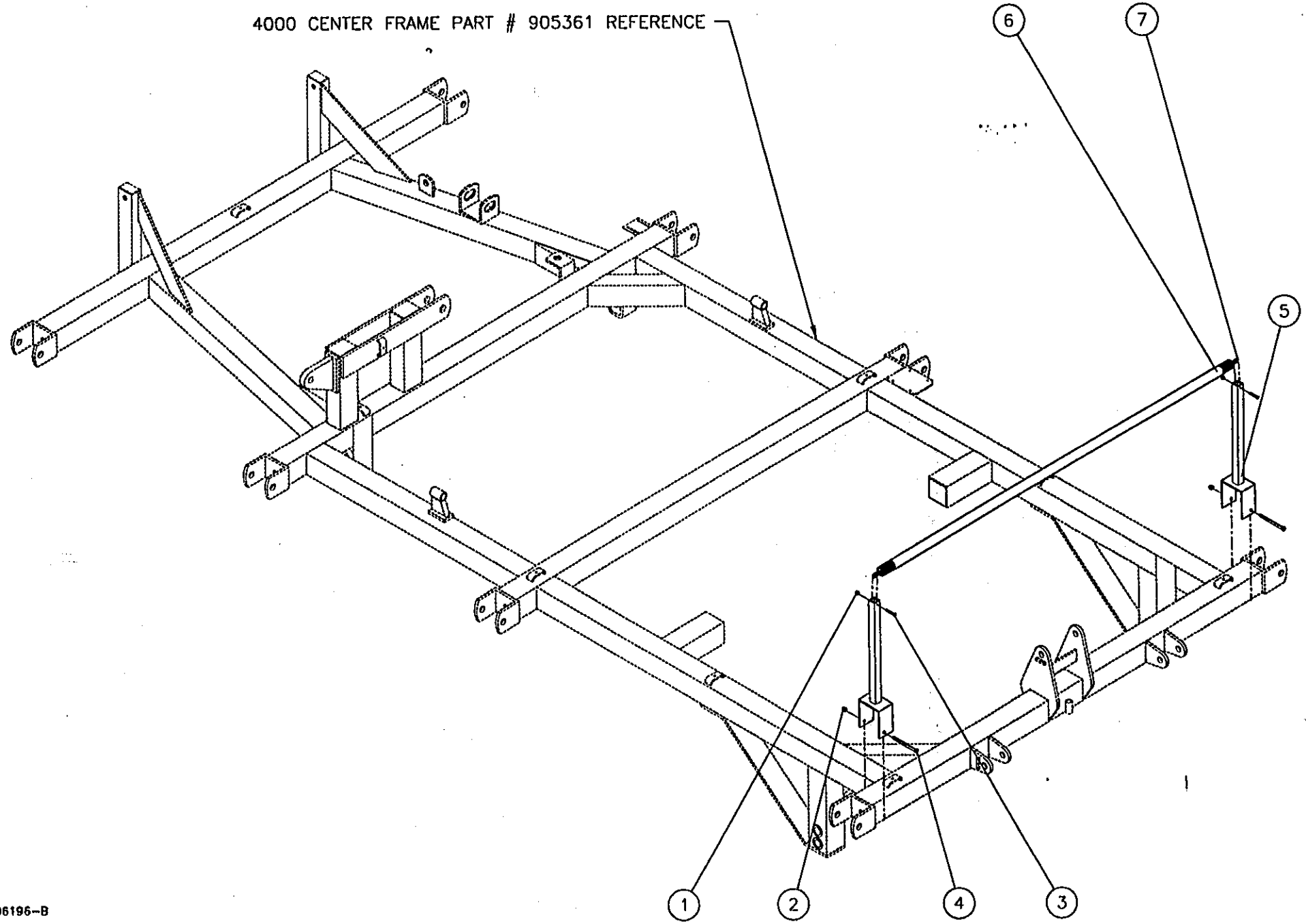
RUBBER PACKER ASSEMBLY (20" DIAMETER)



HOSE SUPPORT ASSEMBLY, 5" - TOW TEBWEEN (FRONT PULL)

			QUANTITY
1.	N0012108	LOCK NUT, 1/4"	2
2.	N0012131	LOCK NUT, 3/8"	2
3.	N0025576	CAPSCREW, 1/4" X 1-3/4"	2
4.	00100060	CAPSCREW, 3/8" X 5"	2
5.	906194	5" HOSE SUPPORT	2
6.	906195	HOSE, 1-1/4" X 78"	1
7.	906198	CHAIN, 82-1/2" [97 LINKS]	1

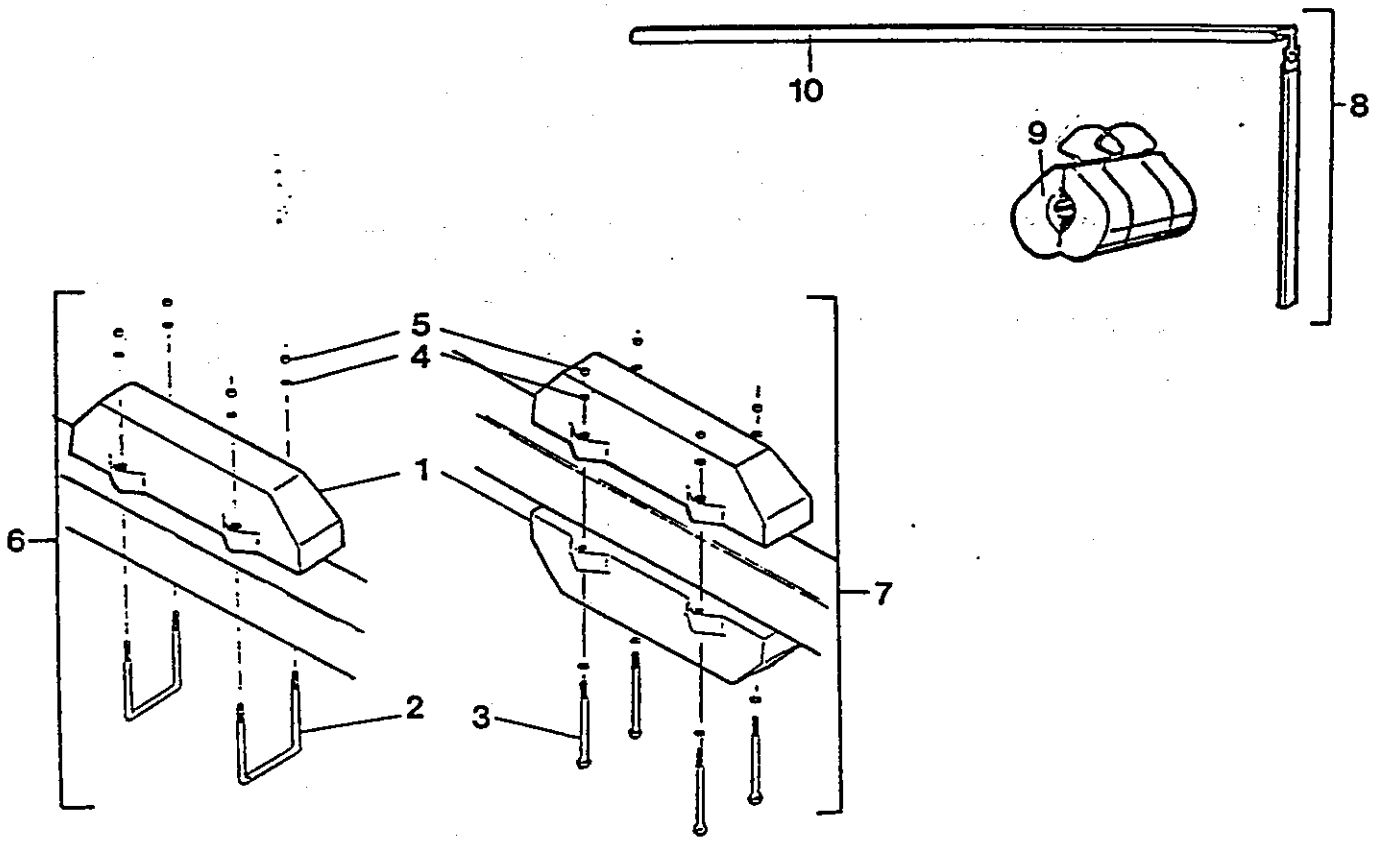
4000 FRONT PULL 5" AIR HOSE SUPPORT ASSEMBLY



WEIGHTS AND LEVELLING PACKAGE

			QUANTITY
1.	N0904656	WEIGHT - FRAME	AR
2.	N0904736	U-BOLT, 1/2" X 4-9/16" X 5-1/2"	2
3.	N0904769	CAPSCREW, 1/2" X 6-1/2"	4
4.	N0012076	FLAT WASHER, 1/2"	8
5.	N0012083	LOCK NUT, 1/2"	4
6.	N0904738	SINGLE WEIGHT PACKAGE *INCLUDES ITEMS # 1, 2, 4 & 5	AR
7.	N0904739	DUAL WEIGHT PACKAGE *INCLUDES ITEMS # 1, 3, 4 & 5	AR
8.	N0098560	LEVELLING PACKAGE *INCLUDES ITEMS # 9 AND 10	AR
9.	N0098559	LEVELLING BLOCK - 4-1/2"	4
10.	N0098555	LEVELLING TOOL	1

WEIGHTS AND LEVELLING PACKAGE



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